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Water Supply Outlook For Washington



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Cooperating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF
May 1, 1982

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Cover: Lone Cone, near Norwood, Colorado, blanketed by its winter mantle of snow.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.



WATER SUPPLY OUTLOOK FOR WASHINGTON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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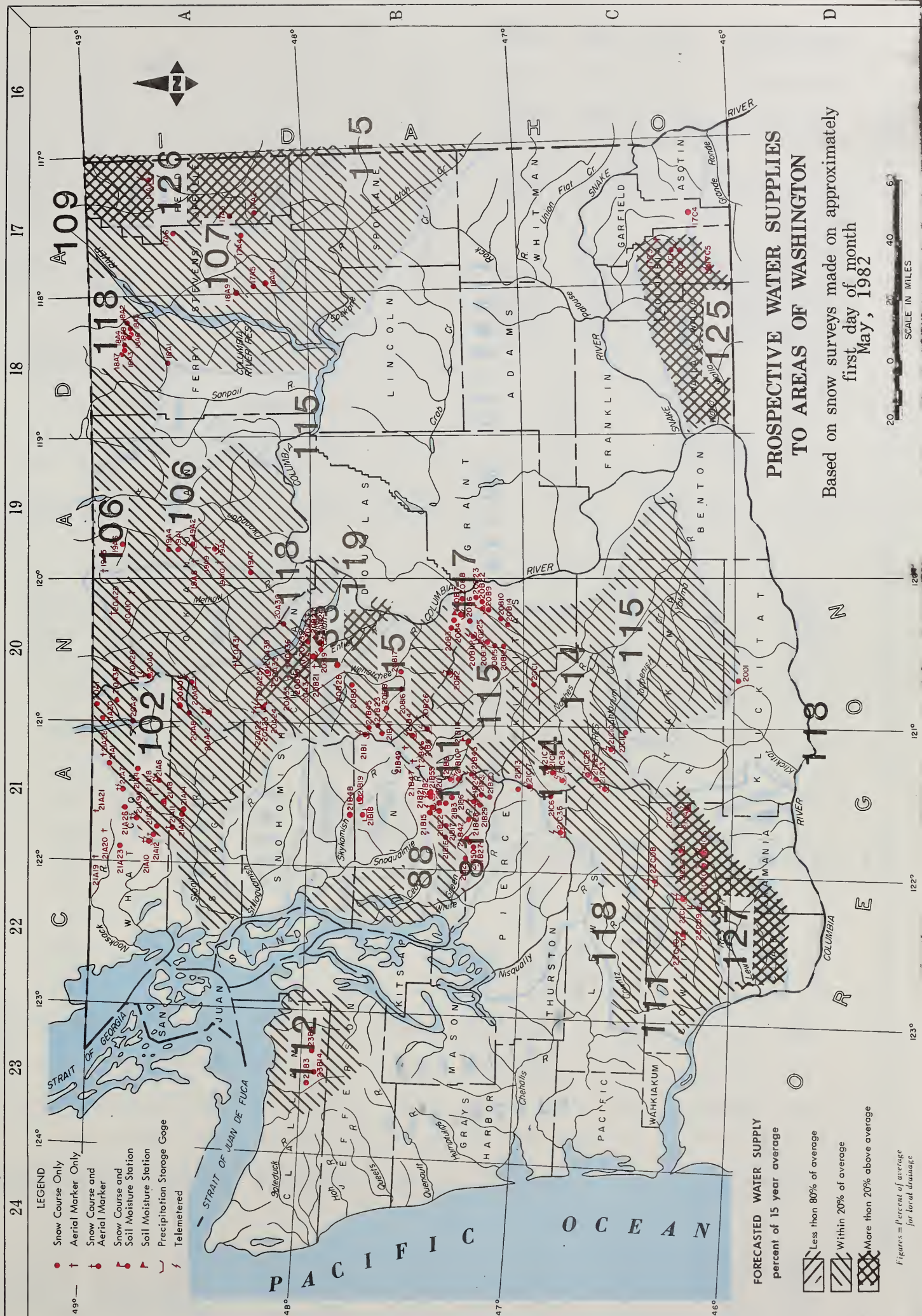
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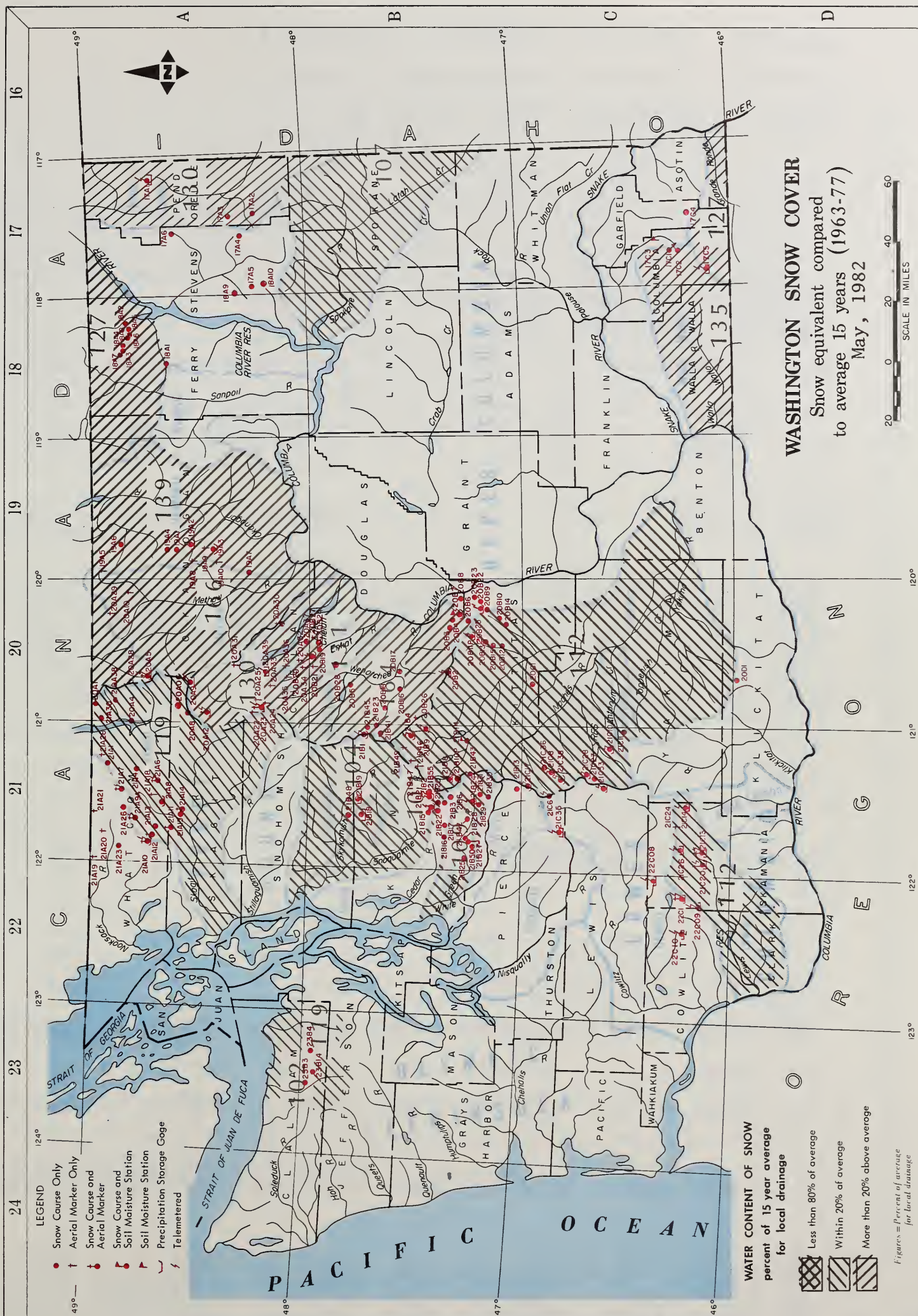
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.								
UPPER COLUMBIA DRAINAGE																									
Pend Oreille River																									
Boyer Mountain	17A2	7	31N	43E	5250	Colocolum Creek Upper	2082Z	11	20N	20E	5300	Jure Lake	22C09SP	26	8N	5E	3200								
Bunchgrass Meadow	17A1SP	24	37N	44E	5000	Colocolum Creek Lower	20823	1	20N	20E	4300	Plains of Abraham	22C13SP	35	9N	7E	3800								
Winchester Creek	17A3	30	33N	43E	2970	Squilechuck Creek	2083	12	21N	19E	4400	Spencer Meadow	21C20SP	16	8N	7E	3400								
Kettle River																									
Boulder Road	18A2	36	39N	36E	1450	Scout-A-Vista	2084	18	21N	20E	3400	Surprise Lakes	21C13SP	14	7N	8E	4250								
Butte Creek	18A3	28	39N	35E	4070	Jump-Off	2088	34	21N	20E	4450	Cowliitz River													
Cabin Creek	18A4	5	38N	36E	3170	Stemilt Slide	2086	30	21N	20E	5000	Cayuse Pass	21C6	15	16N	10E	5300								
Goat Creek	18A4	26	39N	35E	3595	Upper Wheeler	2087SP	30	21N	20E	4400	Pigtail Peak	21C33SP	11	13N	11E	5900								
Snow Caps Creek	18A5	3	38N	36E	2150	Yakima River					Potato Hill	21C14SP	36	10N	10E	4500									
Snow Caps Trail	18A6	5	38N	36E	2720	Ahtanum R. S.	21C11	24	12N	14E	3100	Sheep Canyon	22C10SP	12	8N	4E	4050								
Summit G. S.	18A7	20	39N	35E	4600	Big Boulder Creek	21B9SP	35	23N	14E	3200	Strawberry	22C08SP	9	10N	6E	3280								
Colville River																									
Baird	17A6	19	36N	42E	3215	Bumping Lake	21C8P	23	16N	12E	3450	Baker River													
Carlson	17A9	34	32N	38E	2885	Bumping Lake New	21C36	13	16N	12E	3400	Dock Butte	21A11A	8	36N	8E	3800								
Chewelah	17A4	11	32N	41E	4925	Bumping Ridge	21C38SP	9	15N	12E	4600	Easy Pass	21A7A	19	39N	11E	5200								
Stranger Mountain	17A5	26	31N	38E	4990	Colocolum Pass	2089	25	20N	20E	5370	Jasper Pass	21A6A	17	38N	11E	5400								
Togo	18A10	6	29N	38E	3370	Cooke Creek	20810	17	19N	20E	4123	Marten Lake	21A9A	23	38N	8E	3600								
Sanpoil River																									
Sherman Creek Pass	18A1	19	36N	35E	5350	Fish Lake	21B4SP	28	24N	14E	3371	Mount Blum	21A18a	27	38N	10E	5800								
Clark	19A8a	2	36N	23E	7000	Green Lake	21C10SP	3	12N	13E	6000	Rocky Creek	21A12AP	20	37N	8E	2100								
Muckamuck	19A9a	20	36N	24E	6750	Grouse Camp	20811 SP	29	21N	19E	5385	Schreibers Meadow	21A10AP	18	37N	8E	3400								
Mullan Creek No. 1	19A1	30	37N	24E	5700	High Creek	20812	34	20N	19E	2930	S. F. Thunder Creek	21A14A	10	36N	9E	2200								
Mullan Creek No. 2	19A19	19	37N	24E	6000	Lake Cle Elum	21B46a	22	23N	12E	4624	Sulphur Creek	21A13	22	37N	8E	1600								
Paysayfen	20A28a	32	40N	18E	4300	Lemah Creek	21B47a	7	23N	13E	3327	Three Mile Creek	21A15	18	36N	9E	1600								
Rusty Creek	19A3P	18	35N	24E	4000	Manastash	20C1	24	17N	16E	3935	Watson Lakes	21A8P	25	37N	9E	4500								
Salmon Meadows	19A2SP	33	37N	23E	4500	Morse Lake	21C17SP	6	16N	11E	5400	Nooksack River													
Starvation Mtn.	19A10a	15	35N	23E	6750	Narum	20813	4	20N	19E	3875	Bald Mountain	21A19a	7	40N	7E	4400								
Touts Coulee	19A6	30	39N	23E	2845	Trail Creek	20814	20	19N	20E	3360	Canyon	21A20A	20	40N	8E	5100								
Methow River																									
Billy Goat Pass	20A10a	10	38N	20E	6400	Tunnel Avenue	21B8P	13	21N	11E	2450	Glacier Creek	21A23	9-10	38N	7E	3700								
Dollar Watch	20A29a	8	39N	20E	7000	Van Epps Pass	20826a	16	23N	15E	5925	Panorama New	21A26	17	39N	9E	4300								
Harts Pass	20A5SP	7	37N	18E	6500	Walters Flat	20815	22	20N	19E	3360	Twin Lakes	21A21a	16	40N	9E	5200								
Horseshoe Basin	19A5a	15	40N	23E	7000	Wapitus Lake	21B49a	12	23N	13E	3024	OLYMPIC PENINSULA													
Loup Loup	19A7	36	34N	23E	4650	White Pass (East Side)	21C28SP	2	13N	11E	4500	Dungeness River													
Chelan Lake Basin																									
Cloudy Pass	20A22a	12	31N	15E	6500	LOWER COLUMBIA DRAINAGE												Deer Park	2384	1	28N	5W	5200		
Greenwood Flat	20A25a	3	31N	16E	3540	Asotin Creek												Morse Creek							
Little Meadows	20A24a	8	31N	16E	3275	Spuce Springs	17C4	9	8N	40E	5700	Airstrip	21B24P	18	20N	11E	1800								
Lyman Lake	20A23SP	18	31N	16E	5900	Touchet River	17C3m	2	9N	40E	3370	Charley Creek	21B25	27	21N	8E	1200								
Park Creek Ridge	20A12SP	18	34N	16E	4600	Cause	17C1	11	9N	40E	4030	Cougar Mountain	21B42SP	21	21N	9E	3200								
Rainy Pass	20A9SP	21	35N	17E	4780	Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400	Grass Mountain No. 2	21B27	14	20N	8E	2900								
Safety Harbor	20A30a	32	31N	20E	6300	Touchet No. 2	17C5SP	6	7N	40E	5530	Grass Mountain No. 3	21B28	12	20N	8E	2100								
War Creek Pass	20A31a	34	33N	18E	6500	Klickitat River												Lester Creek	21B29	36	20N	10E	3100		
Mirar Lake	20A39	30	31N	18E	5600	Satus Pass	20D1	21	6N	17E	4030	Lynn Lake	21B50	22	20N	8E	4000								
Entiat River																		Hurricane	2383	36	29N	7W	4500		
Blue Creek G.S.	20B28a	19	28N	18E	5425	Wenatchee River												Elwha River							
Brief	20B19	34	28N	19E	1600	Berne-Mill Creek	21B23	7	26N	15E	3170	Sawmill Ridge	21B31	5	19N	11E	4700								
Entiat Meadows	20A33a	28	31N	17E	4540	Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240	Snowshoe Butte	21B43SP	14	20N	11E	5000								
Entiat River Trail	20A34a	2	29N	17E	3325	Blewett Pass No. 2	20B2SP	35	22N	17E	4270	Stampede Pass	21B10 SP	25	21N	11E	3860								
Four Mile Ridge	20B27a	15	28N	19E	6800	Lake Wenatchee	20B16	4	25N	17E	1810	Twin Camp	21B30	18	19N	11E	4100								
Fox Camp	20A36a	17	30N	18E	6510	Leavenworth R. S.	20B17	1	24N	17E	1127	City Cabin	21B3	10	21N	10E	2390								
Pope Ridge	20B20	22	29N	18E	3540	Merritt	20B18	4	26N	16E	2140	Mt. Gardner	21B21P	30	22N	10E	3300								
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540	Stevens Pass	21B15P	14	26N	13E	4070	Mt. Gardner Aux.	21B22	31	22N	10E	2500								
Pugh Ridge	20A32a	34	30N	18E	6725	Stevens Pass Shed	21B45	12	26N	19E	3700	Mt. Lindsey	21B16P	31	22N	9E	2500								
Shady Pass	20A37	20	30N	19E	6200	Tough '72	20B25SP	10	20N	20E	5310	Rex River	21B15 P	8	22N	9E	3000								
Snow Brushy	20A35a	21	30N	17E	3910	Skykomish River												South Fork Cedar	21B17 P	11	21N	9E	2400		
Tommy Creek	20B21a	10	28N	18E	4900	Snoqualmie River												South Fork Tolt	21B18 P	26	26N	9E	1900		
LEGEND																		Olallie Meadows East	21B55SP	20	22N	11E	8700		
Snow Course Only																		Alpine Meadow	21B48	31	27N	9E	3500		
Aerial Marker Only																		Olallie Meadows	21B2P	19	22N	11E	3625		
Snow Course And Soil Moisture																		South Fork Tolt	21B18P	26	26N	9E	1900		
Snow Course And Soil Moisture Station																		Olallie Meadows East	21B55SP	20	22N	11E	8700		
Snow Course And Precipitation Storage Gage																		Lake Elizabeth	21B19 P	33	26N	10E	2900		
Precipitation Storage Gage																									
Snow Pillow																									



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WATER SUPPLY OUTLOOK

State of Washington

May 1, 1982

The heavy storms that occurred around the first of April turned the month into a cold one. Above normal snowfall and valley precipitation fell in the northeastern portion of the state, in the Blue Mountains, and on the Southwest Slope Cascades. The rest of the state experienced a drying trend with the least amount, percentagewise, occurring in the North Central or Okanogan drainage division. The water supply outlook has not changed appreciably from that reported last month. Percentage comparisons show a general improvement in the amount of water left in the hills to run off during the remainder of the water use season. All basins are expected to have above normal outflows except on the west side of the Cascades. The forecast range for the May through September water use season is from 81 to 133 percent of normal.

SNOW COVER

The comparisons of mountain snowcover after the April 1 measurements are not too indicative of current conditions. The lower elevation snow courses are generally bare by May 1; yet in cold years, such as 1982, a snow flurry can make a considerable difference in the basin statistics. This happened at several snow courses as of May 1. Discounting this phenomenon, the comparison of May 1 snow water equivalents with the last couple of years and the 1963-77 average is as follows: Pend Oreille, measured by 14 snow courses, has a snowpack that is 286 percent greater than last year's measurement; 162 percent greater than occurred in 1980; and 30 percent greater than normal. The Okanogan, measured by 36 snow courses, has a snowpack 176 percent above last year and 39 percent above normal. The average for all measurements in the Upper Columbia Basin reported herein is 197 percent greater than last year, 168 percent greater than that which occurred in 1980, and 34 percent above normal. The mean snowcover of the seven snow courses in the Lower Columbia Basin, as reported herein, is 732 percent greater than last year; 134 percent above 1980; and 20 percent greater than average. Along the east slope of the Cascades, the snowcover is 275 percent greater than last year; 123 percent greater than 1981; but only 9 percent above normal. Along the north side of the Olympics, the snowcover is 430 percent greater than last year; 128 percent greater than that which occurred in 1980; and 15 percent greater than the 1963-77 average.

RESERVOIRS

The reservoirs are all under close management. Those with flood control space have been emptied to take the spring flows and the irrigation reservoirs are filling under management control. It is anticipated that all reservoirs will fill with the spring runoff, including Lake Cle Elum which had been drawn down for fish releases. The use of reservoir water is dependent to a great extent upon the subsequent climatical conditions in the area of water use. Wet weather reduces the call for irrigation water, while a hot, dry summer would increase this use. Under normal conditions, there is adequate water for all uses and even a good carry over into the next winter's storage season.

PRECIPITATION

The May report starts a new rainfall picture. We are into the spring season and so the rainfall that occurred during the month of April stands alone. We have had a variety of rainfall, as reported by the National Weather Service. Eastern Washington has generally been wet, while the Cascades generally have experienced subnormal rainfall this past month. In the Columbia drainage division above Castlegar, precipitation has only been 69 percent of normal; while the Pend Oreille, Northeastern Washington, and Souteastern Washington have had well above normal rainfall--82 percent above, 22 percent above, and 20 percent above, respectively. The other drainage division that had above normal rainfall was Southeast Slope Cascades, it having a 13 percent above normal rainfall during the month of April. The Okanogan, or North Central drainage division, was the really dry one this month, only 47 percent of normal precipitation occurred. The East Slope Cascades and the Northwest Slope Cascades both had rainfall that was only in the 80 percent of normal category.

STREAMFLOW

Runoff in the State of Washington was generally below normal except for some low elevation watersheds in the eastern portion of the state. Along the mainstem, good flows have been experienced with the Columbia, as measured at The Dalles, having an outflow 8 percent above normal. The high points were the Palouse, as measured near Hooper, and Walla Walla at Touchet, both with 51 percent above normal runoff. On the other side, the Similkameen River out of Canada had a flow only 59 percent of normal. Forecasts in Washington range from a low of approximately 20 percent below normal on certain Puget Sound drainage watersheds to a high of 25 percent above normal for some watersheds flowing from Western Montana and out of the Blue Mountains. This is not dramatically different from that reported last month. There is a slight improvement in the water supply as a result of the below normal runoff and the cold temperatures which have delayed snowmelt. This is reflected in the increased snowcover, percentagewise, measured as of May 1. Numerical forecasts can be found following this narrative.

STREAMFLOW FORECASTS - May, 1982

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1981 are preliminary and subject to revision.

1981 are preliminary and subject to revision.				Seasonal Streamflow in Thousands of Acre-feet			
Basin, Stream and Station	Forecast Runoff 1982	% 15-yr. Avg.	Fore- cast period	1981	1980	1979	15-yr. Average
							63-77
<u>COLUMBIA BASIN</u>							
<u>COLUMBIA RIVER SYSTEM</u>							
Columbia River	46700	109	May-Sept	45265	35923	32506	42781
at Birchbank <u>1/</u>	36650	109	May-July	35235	29192	25203	33630
	25600	109	May-June	23736	22730	17683	23469
Columbia River	70900	115	May-Sept	63703	52308	47880	61521
at Grand Coulee <u>1/</u>	58130	115	May-July	51925	43612	39207	50545
	43440	115	May-June	37635	35163	30248	37775
Columbia River	78600	117	May-Sept	69986	56911	50210	67032
bl. Priest Rapids <u>1/</u>	65010	117	May-July	57367	48166	41612	55565
	48670	117	May-June	42026	39066	32364	41600
Columbia River	107000	118	May-Sept	85504	78563	66834	90972
at The Dalles, OR <u>1/</u>	89700	118	May-July	70678	65325	55749	75997
	69300	118	May-June	53611	53710	45007	58714
<u>PEND OREILLE RIVER SYSTEM</u>							
Pend Oreille River	17200	126	May-Sept	12043	11197	10206	13596
bl. Box Canyon	15300	125	May-July	11326	10042	9662	12287
	12900	126	May-June	9741	8702	8783	10230
<u>KETTLE RIVER SYSTEM</u>							
Kettle River	1900	118	May-Sept	1937	1422	1133	1615
nr. Laurier	1780	117	May-July	1795	1334	1090	1523
	1580	116	May-June	1467	1190	1007	1357
Colville River	90	107	May-Sept		76	43	84
at Kettle Falls	80	110	May-July		66	38	73
	70	108	May-June		57	35	65

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1982	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-yr. Avg.	Fore- cast period	1981	1980	1979	15-yr. Average 63-77
<u>SPOKANE RIVER SYSTEM</u>							
Spokane River **	2360	115	May-Sept	1557	1675	1924	2102
at Post Falls, ID 2/	2260	115	May-July	1464	1507	1872	1966
	2110	115	May-June	1279	1365	1793	1833
<u>OKANOGAN RIVER SYSTEM</u>							
Similkameen River	1520	106	May-Sept	1143	1340	811	1439
nr. Nighthawk	1400	105	May-July	1020	1251	751	1339
	1180	106	May-June	832	1108	667	1114
Okanogan River	1690	106	May-Sept		1418	840	1593
nr. Tonasket	1550	108	May-July	1268	1290	756	1439
	1300	110	May-June	995	1107	662	1179
<u>METHOW RIVER SYSTEM</u>							
Methow River	1110	118	May-Sept		915	441	938
nr. Pateros	1800	116	May-July		854	395	863
	820	114	May-June		750	345	717
<u>CHELAN RIVER SYSTEM</u>							
Chelan River	1350	119	May-Sept	807	933	675	1139
at Chelan 3/	1180	120	May-July	702	833	584	982
	890	121	May-June	537	672	475	736
Stehekin River	970	118	May-Sept		643	511	823
at Stehekin	820	120	May-July		547	422	683
	610	123	May-June		425	332	497
Entiat	300	133	May-Sept		187	124	227
nr. Ardenvoir	275	135	May-July		171	110	204
	225	142	May-June		143	94	159
<u>WENATCHEE RIVER SYSTEM</u>							
Wenatchee River	1350	115	May-Sept			785	1172
at Plain	1160	112	May-July			704	1032
	875	112	May-June			596	778
Wenatchee River	1850	116	May-Sept	1047	1201	1024	1594
at Peshastin	1610	114	May-July	946	1087	932	1413
	1215	113	May-June	754	893	796	1077
Stemilt Basin	135*	98	May-Sept				138*
nr. Wenatchee							
Icicle Creek	395	106	Apr-Sept				371
nr. Leavenworth	360	105	Apr-July				342
	295	106	Apr-June				279

2/ Observed flow corrected for storage in Coeue d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

* Thousands of Miners' Inches

** Forecasts made by Gerald A. Beard, Soil Conservation Service, Boise, Idaho.

Basin, Stream and Station	Forecast Runoff 1982	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-yr. Avg.	Fore- cast period	1981	1980	1979	15-yr. Average 63-77
YAKIMA RIVER SYSTEM							
Yakima River	135	111	May-Sept	68	78	99	122
nr. Martin <u>4/</u>	125	114	May-July	56	66	89	110
	100	110	May-June	46	58	77	91
Yakima River	950	115	May-Sept	537	552	574	827
at Cle Elum <u>5/</u>	845	115	May-July	480	476	543	735
	695	115	May-June	400	406	459	603
Yakima River	2080	115	May-Sept	922	1235	1115	1815
nr. Parker <u>6/</u>	1850	115	May-July	787	1134	1014	1601
	1540	115	May-June	688	1011	906	1340
Kachess River	125	119	May-Sept	56	77	76	105
nr. Easton <u>7/</u>	115	117	May-July	48	70	70	98
	95	116	May-June	42	57	63	82
Cle Elum River	500	118	May-Sept	252		295	423
nr. Roslyn <u>8/</u>	440	116	May-July	221	252	273	379
	350	116	May-June	183	216	239	302
Bumping River	150	114	May-Sept	64	101	90	132
nr. Nile <u>9/</u>	130	109	May-July	56	92	83	119
	100	108	May-June	48	83	73	93
American River	125	110	May-Sept		95	71	114
nr. Nile	115	112	May-July		88	64	103
	90	110	May-June		79	56	82
Tieton River	255	114	May-Sept	122	176	159	223
at Tieton Dam <u>10/</u>	210	115	May-July	105	144	128	183
	160	115	May-June	82	118	100	139
Naches River	880	114	May-Sept	332	514	492	771
nr. Naches <u>11/</u>	775	114	May-July	292	479	446	683
	640	115	May-June	251	422	395	555
Ahtanum Creek	40	103	May-Sept				39
nr. Tampico <u>12/</u>	35	100	May-July				35
	30	103	May-June				29

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.

12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1982	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-yr. Avg.	Fore- cast period	1981	1980	1979	15-yr. Average 63-77
<u>LOWER COLUMBIA RIVER SYSTEM</u>							
Mill Creek	9.6	125	May-Sept			9.08	7.70
nr. Walla Walla	9.4	125	May-July			8.96	7.50
	9.1	125	May-June			8.85	7.30
Lewis River	1220	127	May-Sept	729		671	958
at Ariel <u>13/</u>	985	125	May-July	604		539	788
	800	123	May-June	498		459	652
Cowlitz River	2030	118	May-Sept			1205	1718
bl. Mayfield Dam	1660	115	May-July			1010	1446
	1300	114	May-June			846	1145
Cowlitz River	2410	111	May-Sept	1628		1522	2169
at Castle Rock <u>14/</u>	1985	110	May-July	1363		1051	1432
	1575	110	May-June	1113		1051	1432
<u>OLYMPIC PENINSULA</u>							
<u>DUNGENESS RIVER SYSTEM</u>							
Dungeness River	160	112	May-Sept			96	143
nr. Sequim	130	115	May-July			77	113
	90	114	May-June			58	79
<u>ELWHA RIVER SYSTEM</u>							
Elwha River	540	112	May-Sept			349	480
nr. Port Angeles	430	113	May-July			276	381
<u>PUGET SOUND</u>							
<u>SKAGIT RIVER SYSTEM</u>							
Skagit River	1910	95	May-Aug			1352	2017
at Newhalem <u>15/</u>	2200	102	May-Sept			1477	2161
	1780	100	May-July			1188	1776
	1270	98	May-June			932	1290
<u>GREEN RIVER SYSTEM</u>							
Green River	190	81	May-Sept			145	233
bl. Howard Hanson Dam <u>16/</u>	160	80	May-July			126	201
	140	81	May-June			112	173
<u>CEDAR RIVER SYSTEM</u>							
Cedar River	65	88	May-Sept			51	74
nr. Cedar Falls	60	92	May-July			46	65
	50	93	May-June			40	54

13/ Observed flow corrected for storage in Lake Merwin, Yale, and Swift Reservoirs.

14/ Observed flow corrected for storage in Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross, and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN STREAM	RESERVOIR	USABLE ^{1/} CAPACITY	1982	1981	Measured May 1 1980	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	247.5	248.0	264.5	238.4
Columbia	Franklin D. Roosevelt Lake	5232.0	412.9	3198.4	2460.0	867.8
Columbia	Banks Lake	714.9	618.7	642.7	527.9	442.8
Okanogan	Conconully Reservoir	13.0	11.6	9.1	6.5	7.7
Okanogan	Conconully Lake	10.5	10.2	10.0	9.0	8.0
Chelan	Lake Chelan	676.1	201.8	224.9	214.4	219.0
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	152.8	159.6	131.5	113.8
Kachess	Kachess Lake	239.0	221.2	240.3	126.7	194.2
Cle Elum	Lake Cle Elum	436.9	184.4	365.1	378.0	295.9
Bumping	Bumping Lake	33.7	7.5	34.3	34.4	11.6
Tieton	Rimrock Lake	198.0	178.0	198.3	144.0	136.6
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	632.1	1086.3	644.0	711.5
Skagit	Diablo Reservoir	90.6	87.2	87.9	84.1	86.4
Skagit	Gorge Reservoir	9.8	8.0	7.9	7.5	8.1

^{1/} Based on Active Storage

* 15-yr. Average 1963-1977

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about May 1, 1982, as percent of the same date in 1981 and 1980 and average of record.

Tributary Basin	No. of Courses Average	1982 Snow Water Expressed as percent of		
		1981	1980	1963-77 Avg.

UPPER COLUMBIA BASIN

Pend Oreille	14	386	262	130
Kettle	10	187	262	127
Spokane	7	305	256	107
Okanogan	36	276	354	139
Methow	6	318	481	166
Chelan	2	143	155	130
Entiat	9	239	223	131
Wenatchee	9	529	232	164
Yakima	16	287	190	112

LOWER COLUMBIA BASIN

Asotin	1	383	214	127
Mill Creek	1	306	306	135
Lewis	3	1806	274	112
Cowlitz	2	-	144	104

PUGET SOUND

White	3	232	162	113
Green	3	288	309	109
Snoqualmie	1	437	202	101
Skykomish	2	586	172	104
Skagit	15	332	269	119

OLYMPIC PENINSULA

Morse Creek	1	368	199	123
Elwha	1	442	284	102
Dungeness	1	781	202	119

PRECIPITATION 1/
Division Average Observations and Departures

Drainage Divisions	FALL		WINTER		SPRING	
	Sept-Oct Observed	1981 <u>2/</u> Departure	Nov 1981 - Observed	Mar 1982 Departure	April 1982 Observed	Departure
Columbia in Canada	5.17	+0.15	17.05	+1.54	1.19	-0.52
Pend Oreille - Spokane	3.56	-0.48	19.70	+2.15	3.31	+1.49
Northeastern Washington	3.28	+0.80	10.12	+0.72	1.54	+0.28
Southeastern Washington	3.03	+0.52	12.95	+2.52	1.84	+0.31
Central Washington	4.87	+0.12	32.22	+4.69	1.83	-0.36
North Central Washington	2.61	+1.02	7.28	+0.74	0.40	-0.45
Northwest Slope Cascades	13.88	+0.67	59.27	+3.88	5.46	-1.18
Southwest Slope Cascades	9.98	+1.30	45.31	+3.67	5.22	+0.60

Northeastern Washington	- Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages.
Central Washington	- Yakima, Wenatchee, and Chelan Drainages.
North Central Washington	- Methow and Okanogan Drainages.
Northwest Slope Cascades	- Puget Sound Drainages.
Southwest Slope Cascades	- Lower Columbia Drainages.

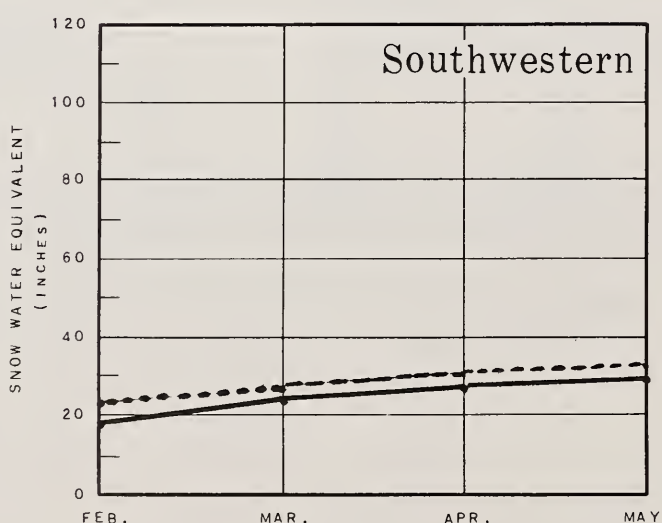
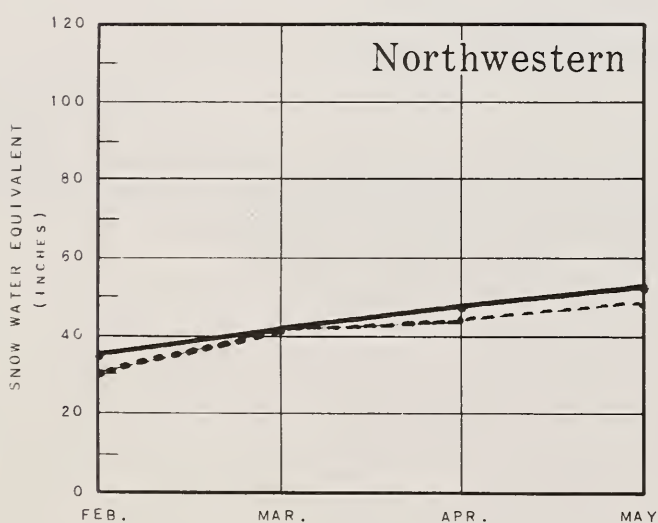
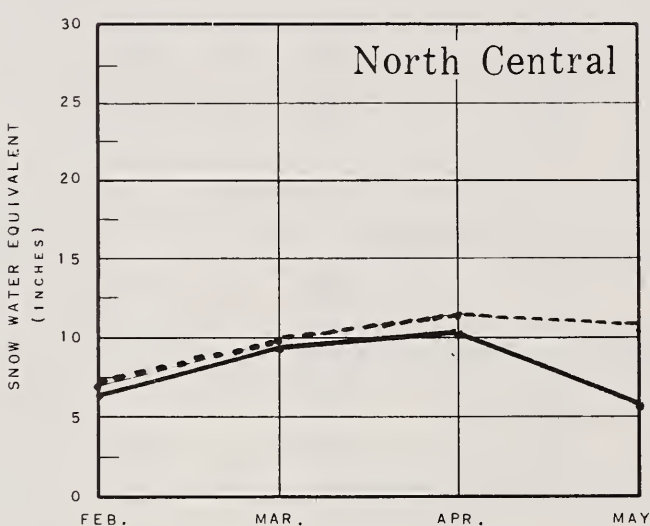
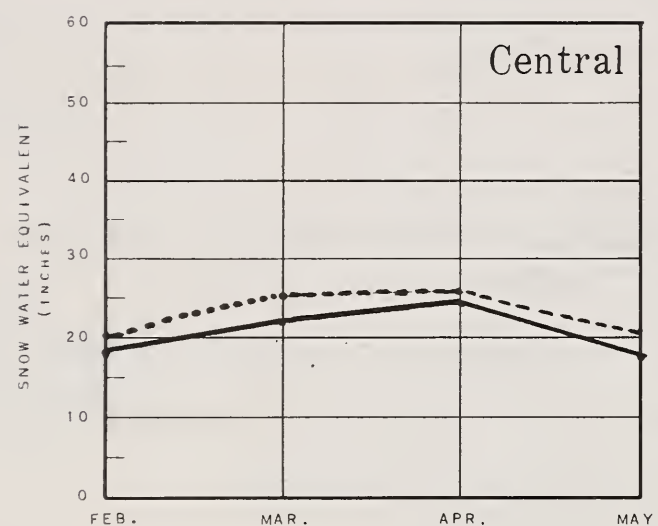
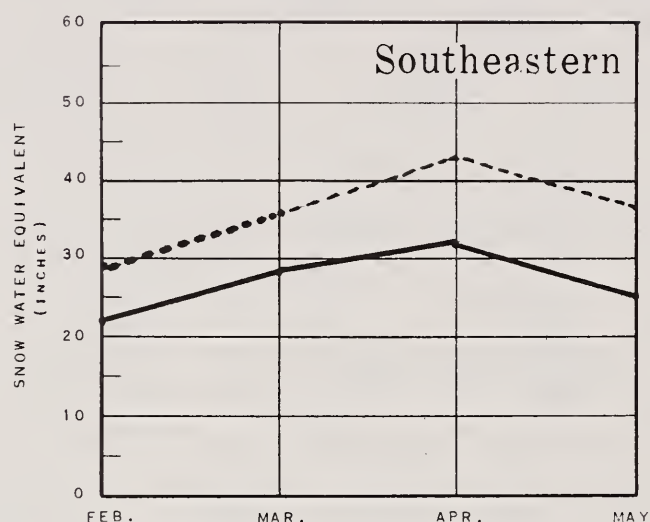
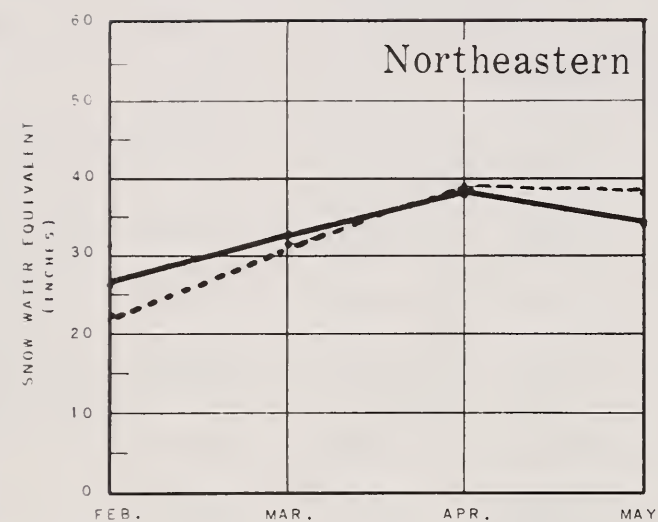
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service.

2/ - Departure from 15-year (1958-72) drainage division average.

WASHINGTON SNOW COVER

1982

DRAINAGE AREAS



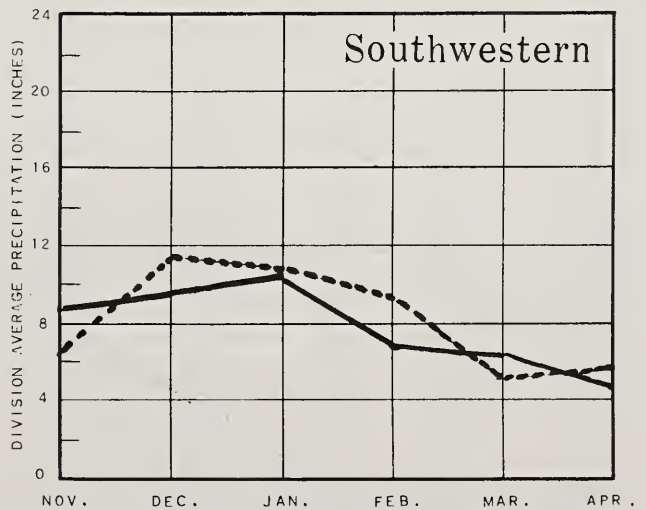
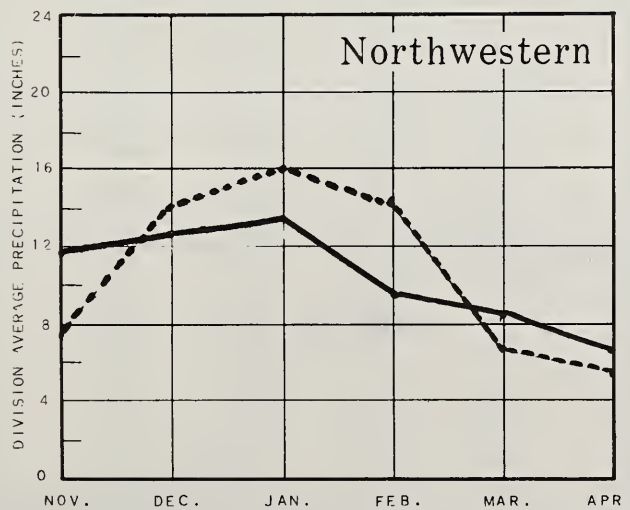
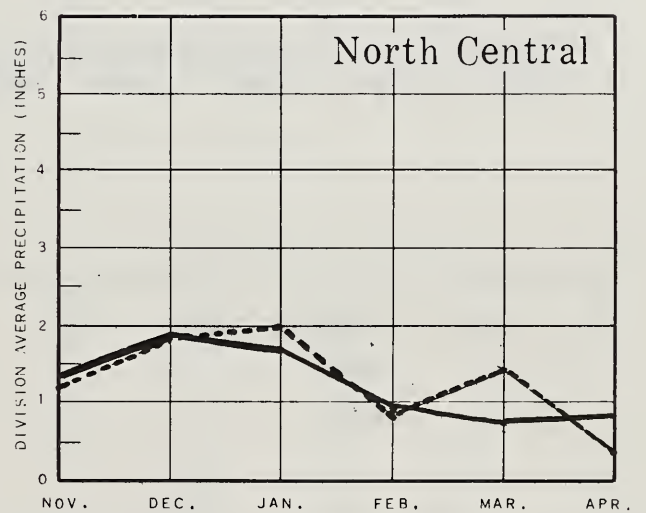
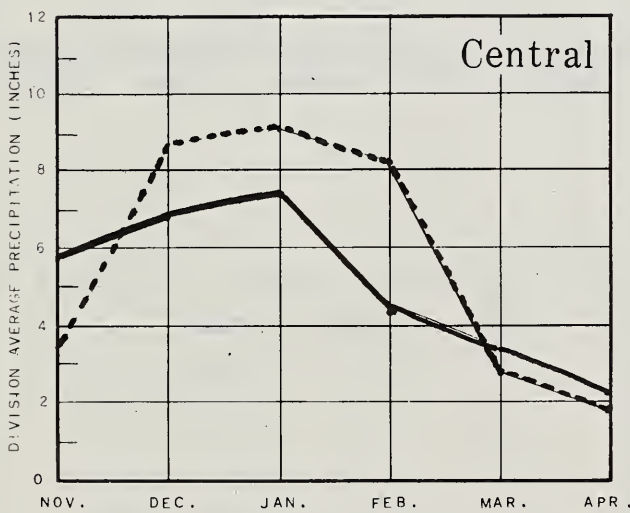
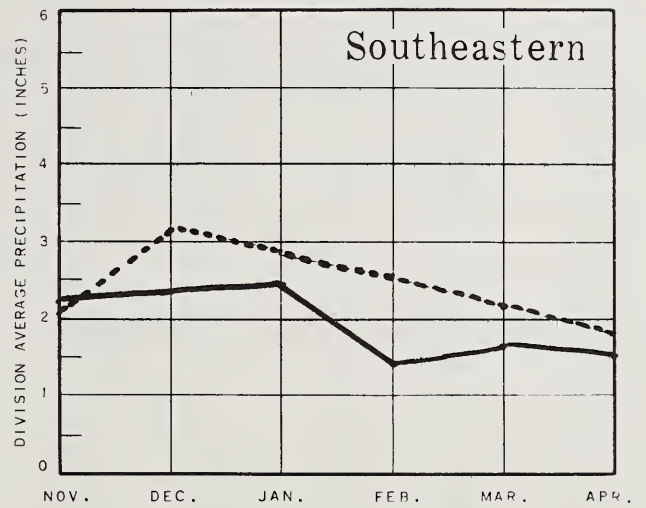
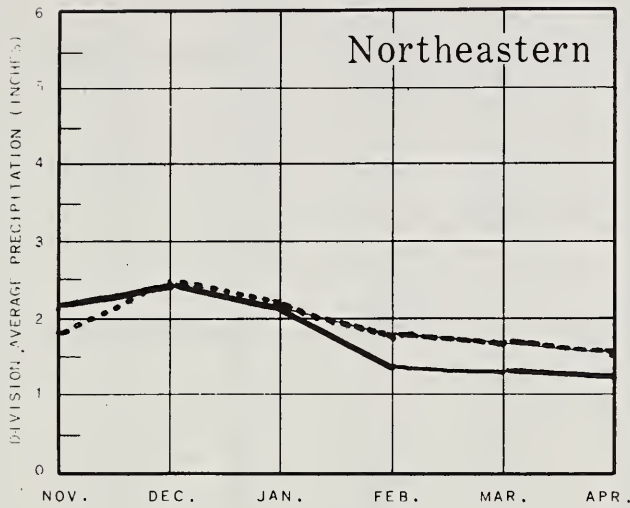
Average —
1982 - - -

Selected Snow Survey Courses by Soil Conservation Service

WASHINGTON VALLEY PRECIPITATION

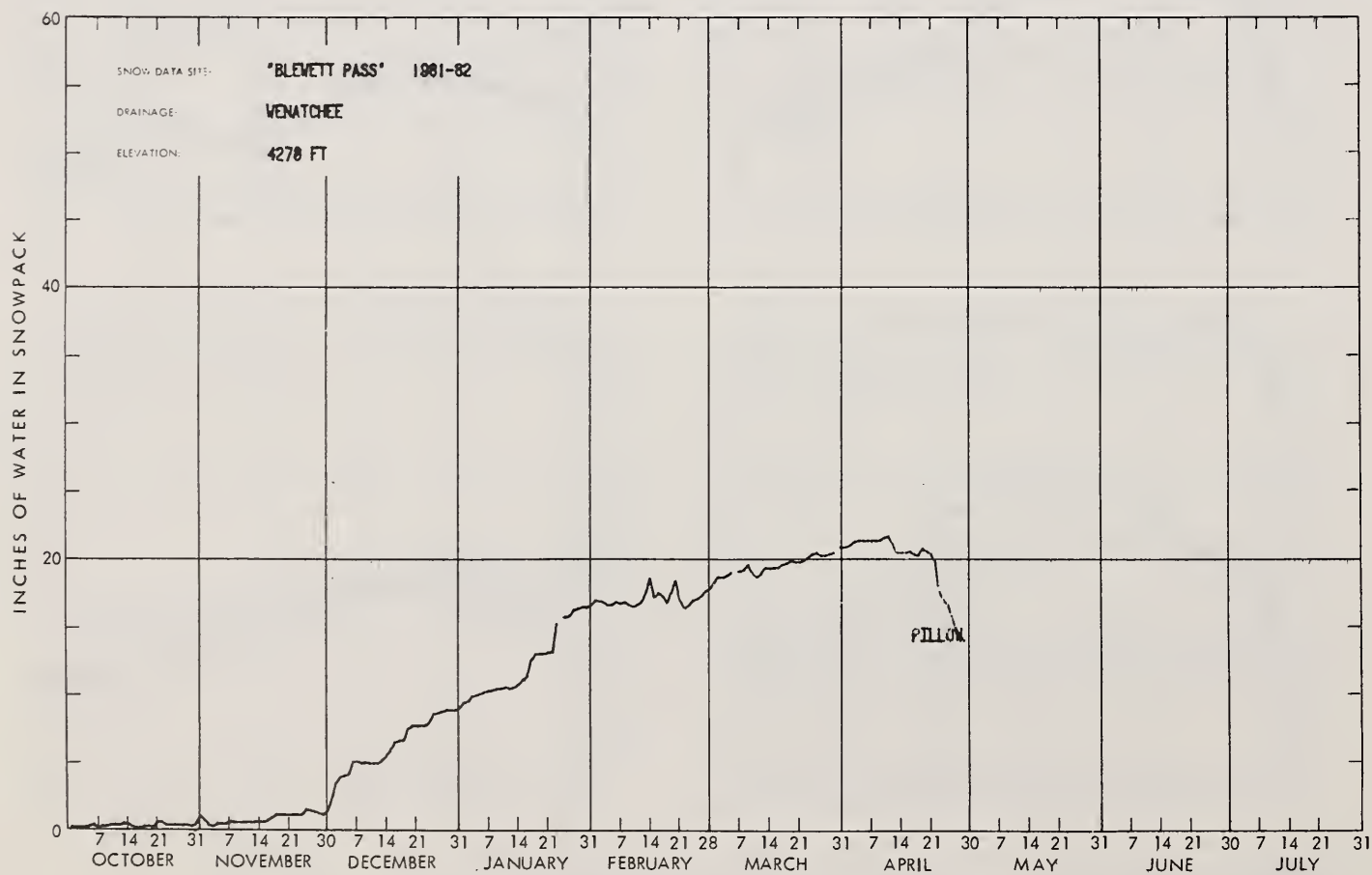
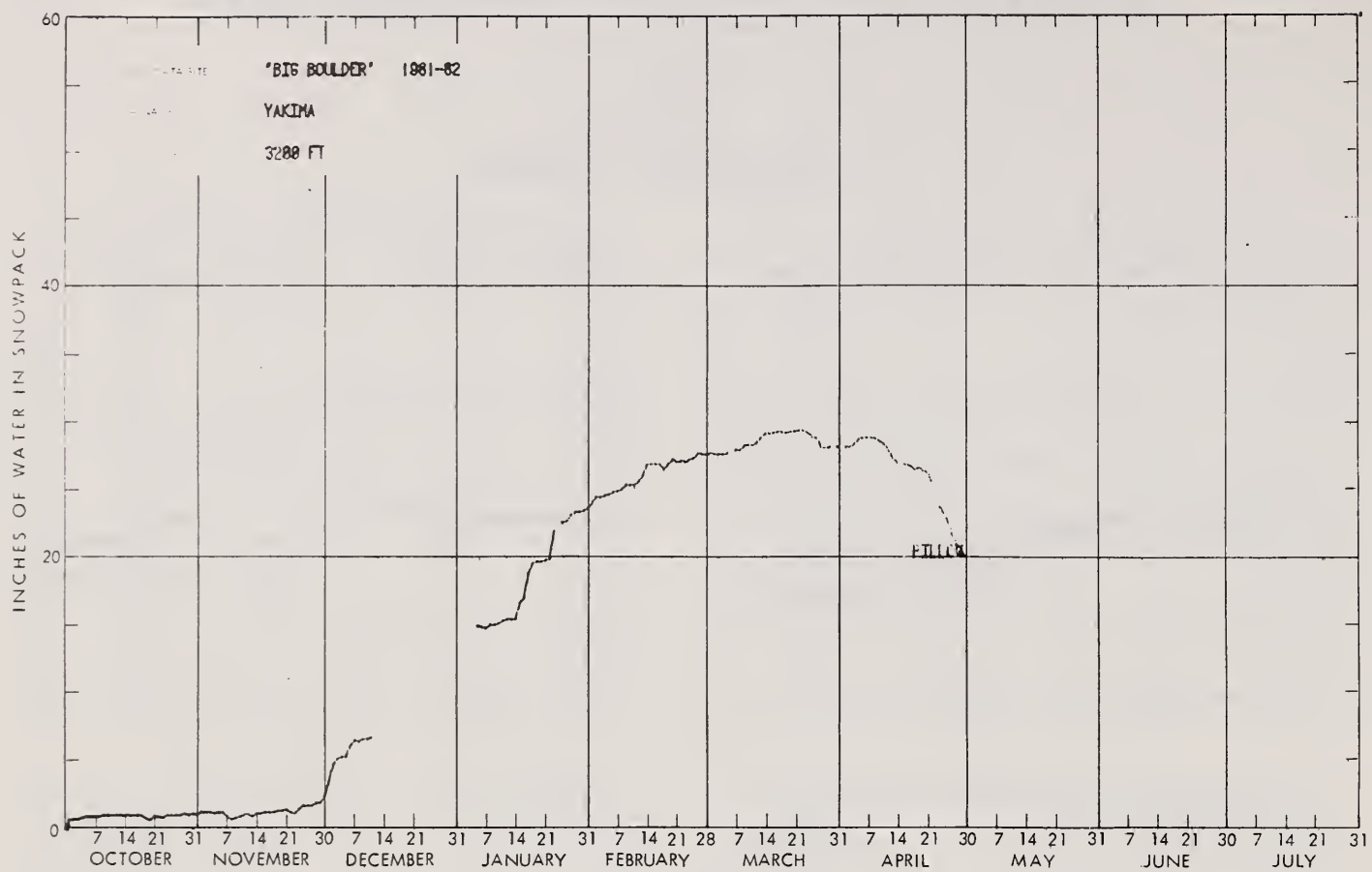
1982

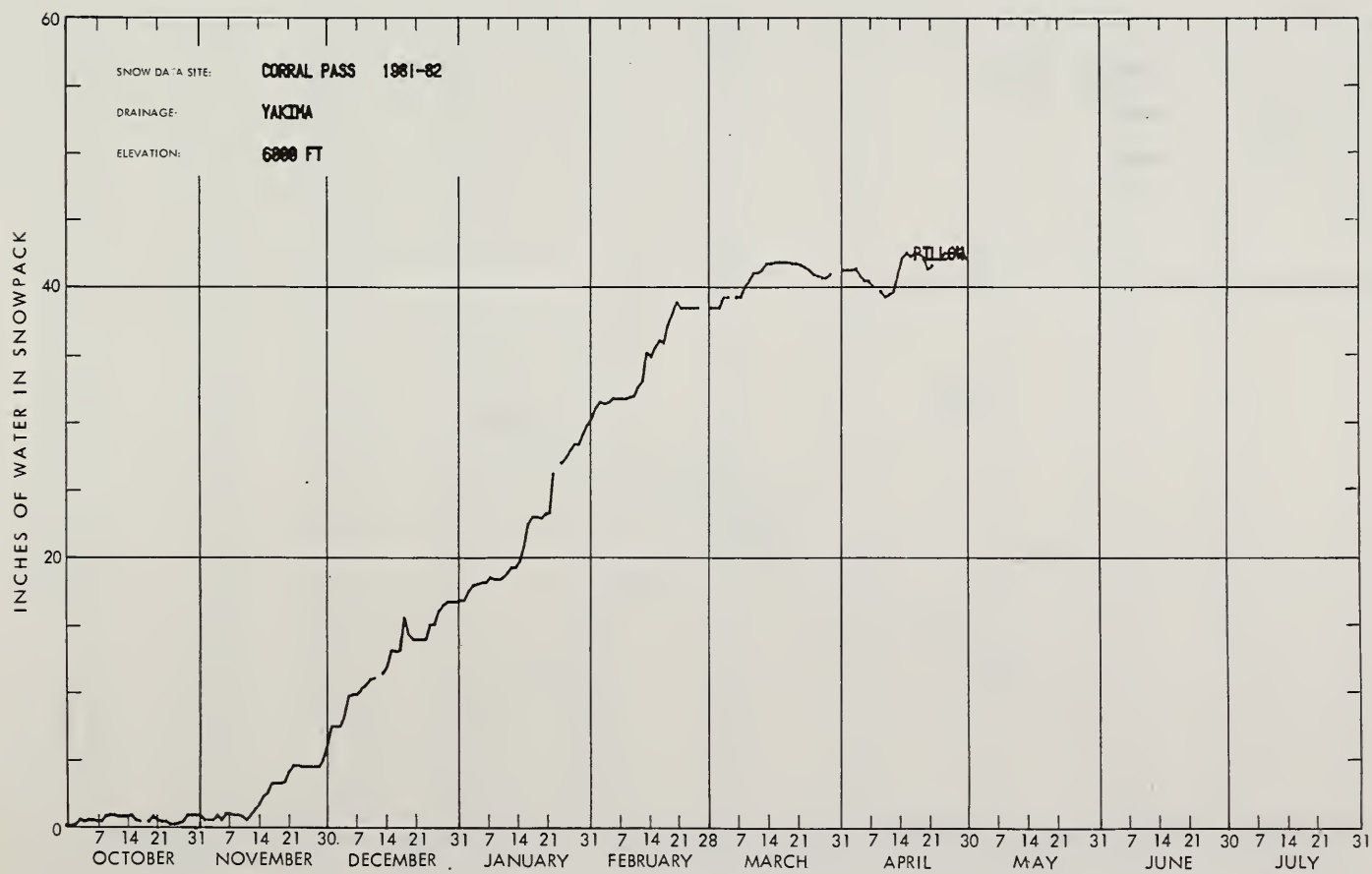
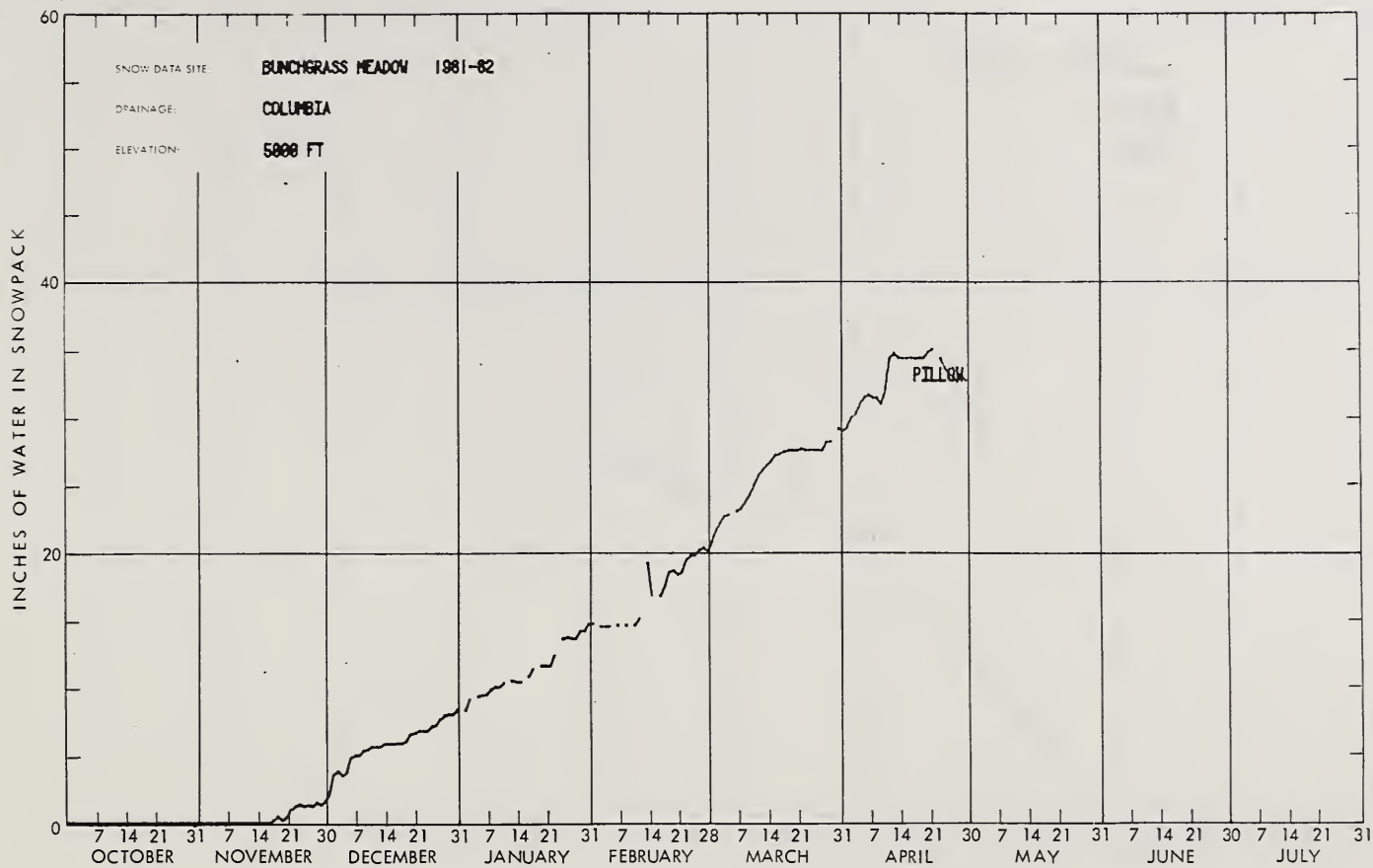
DRAINAGE AREAS

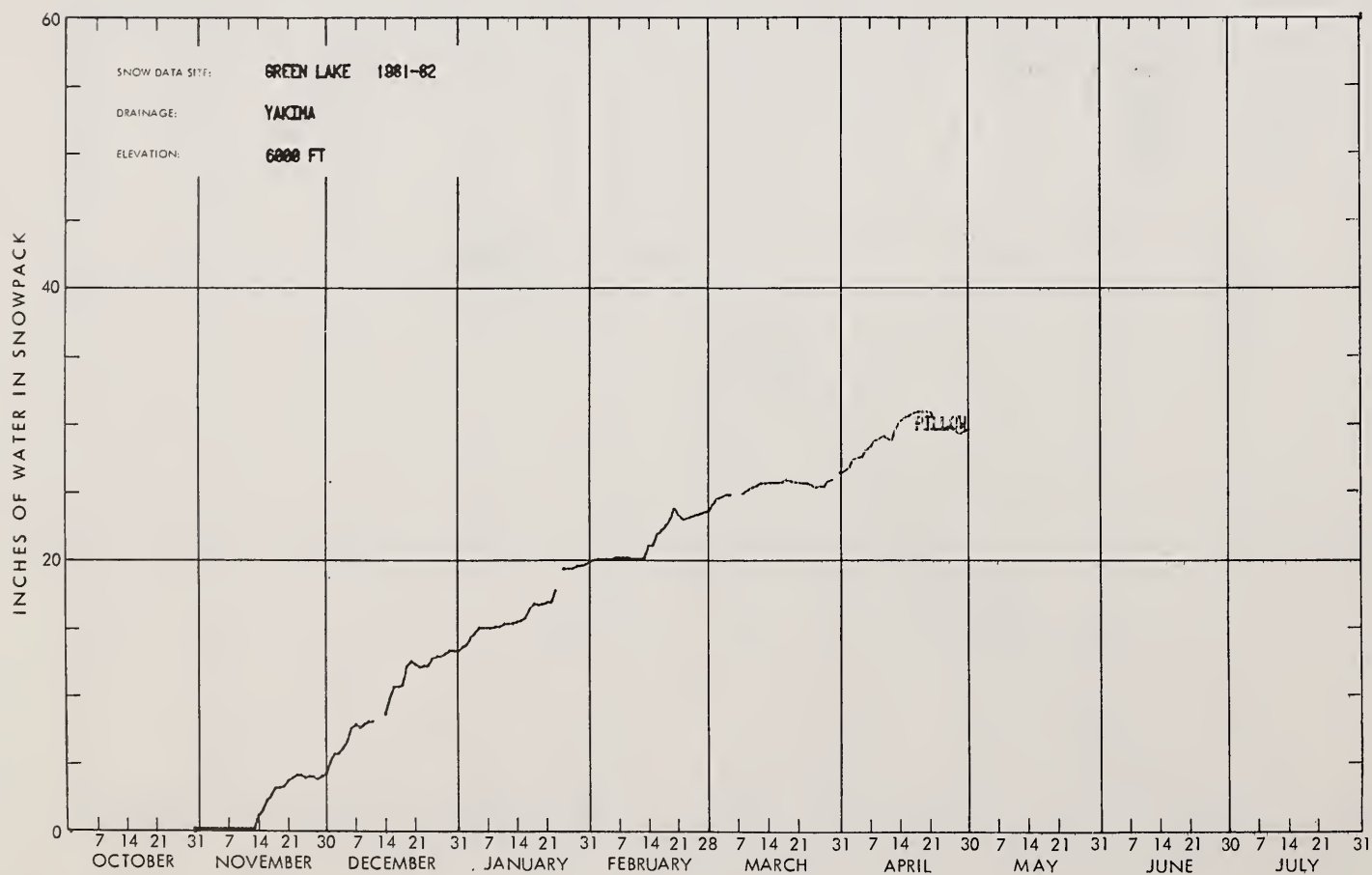
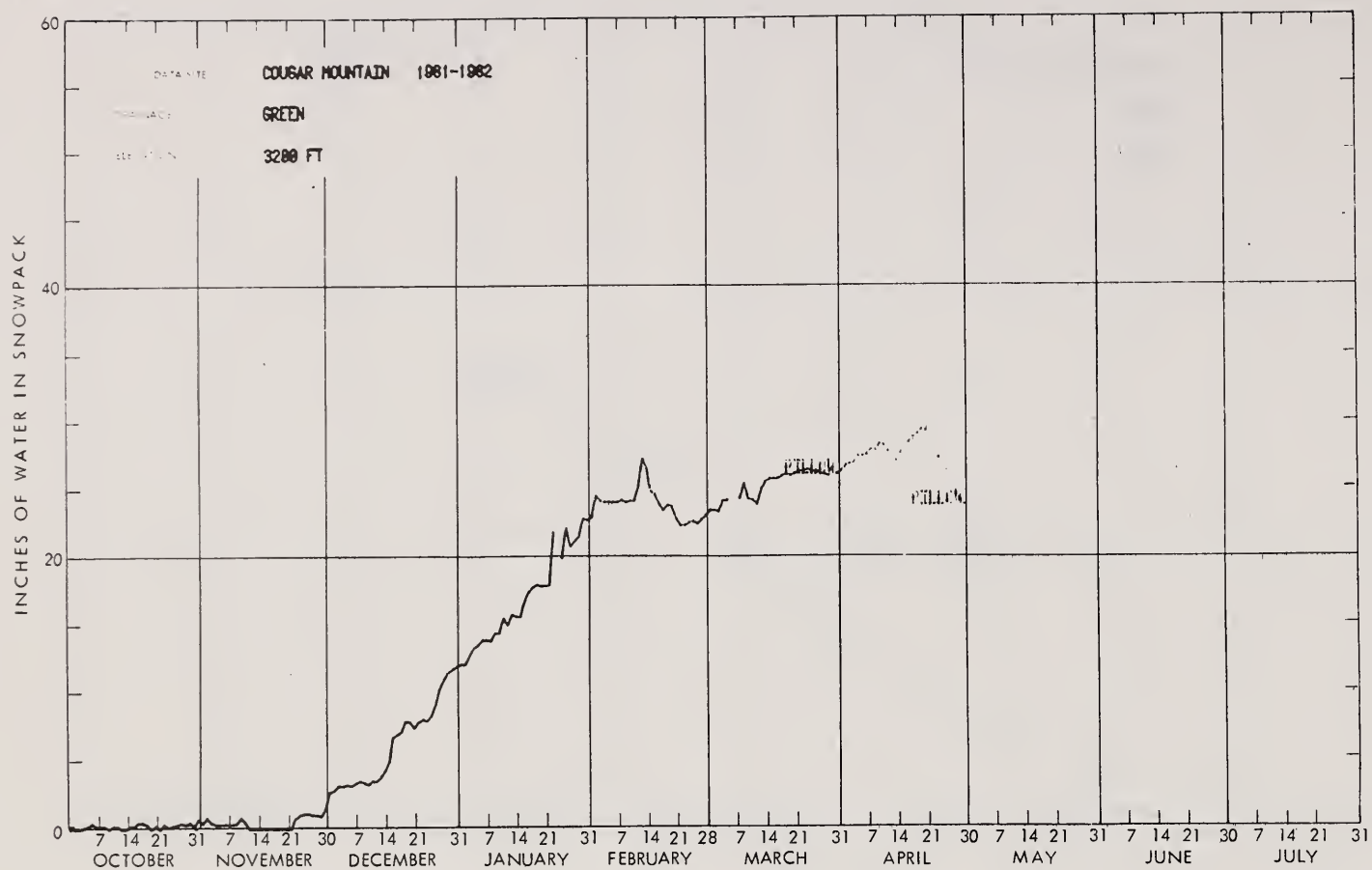


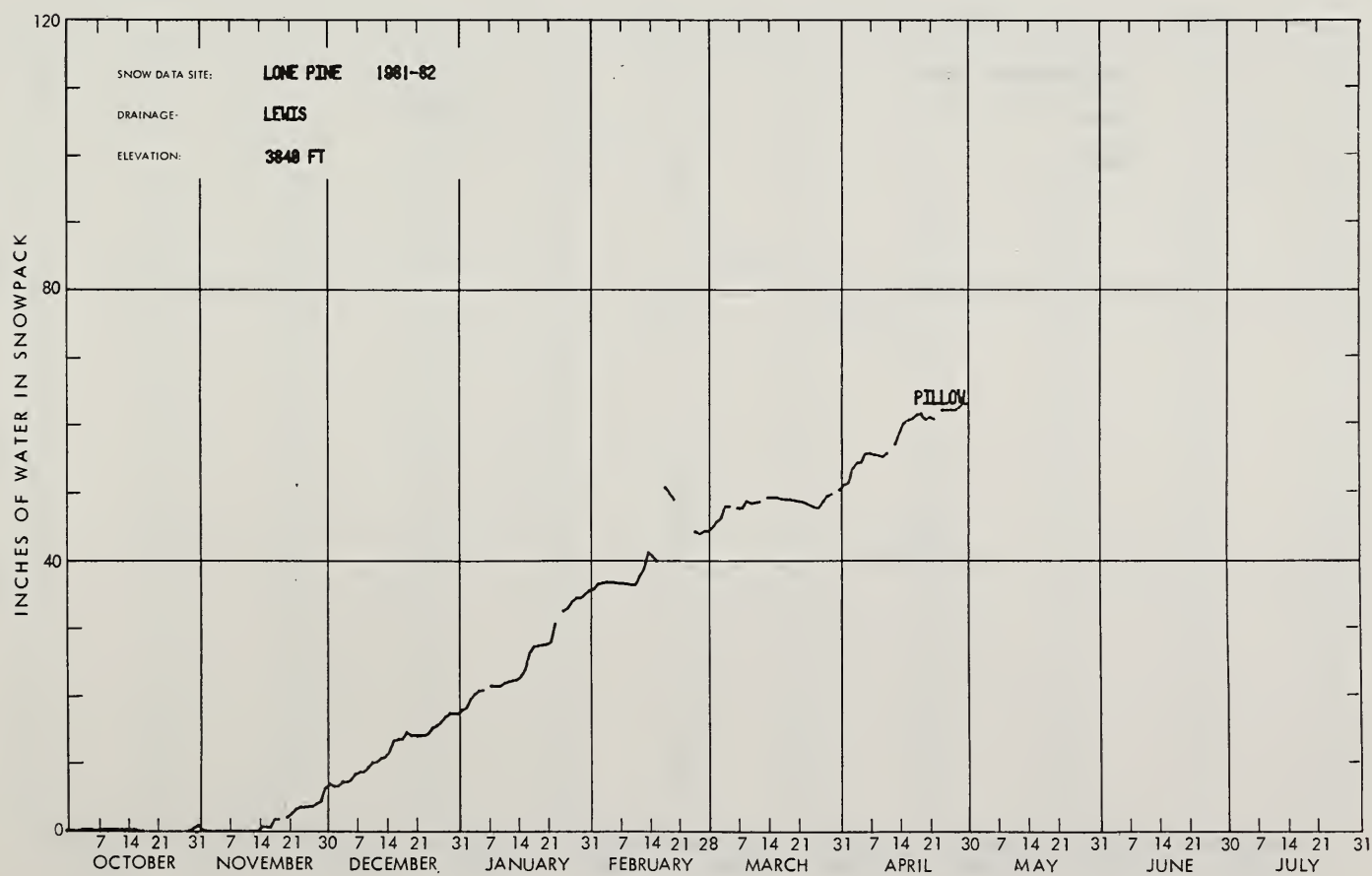
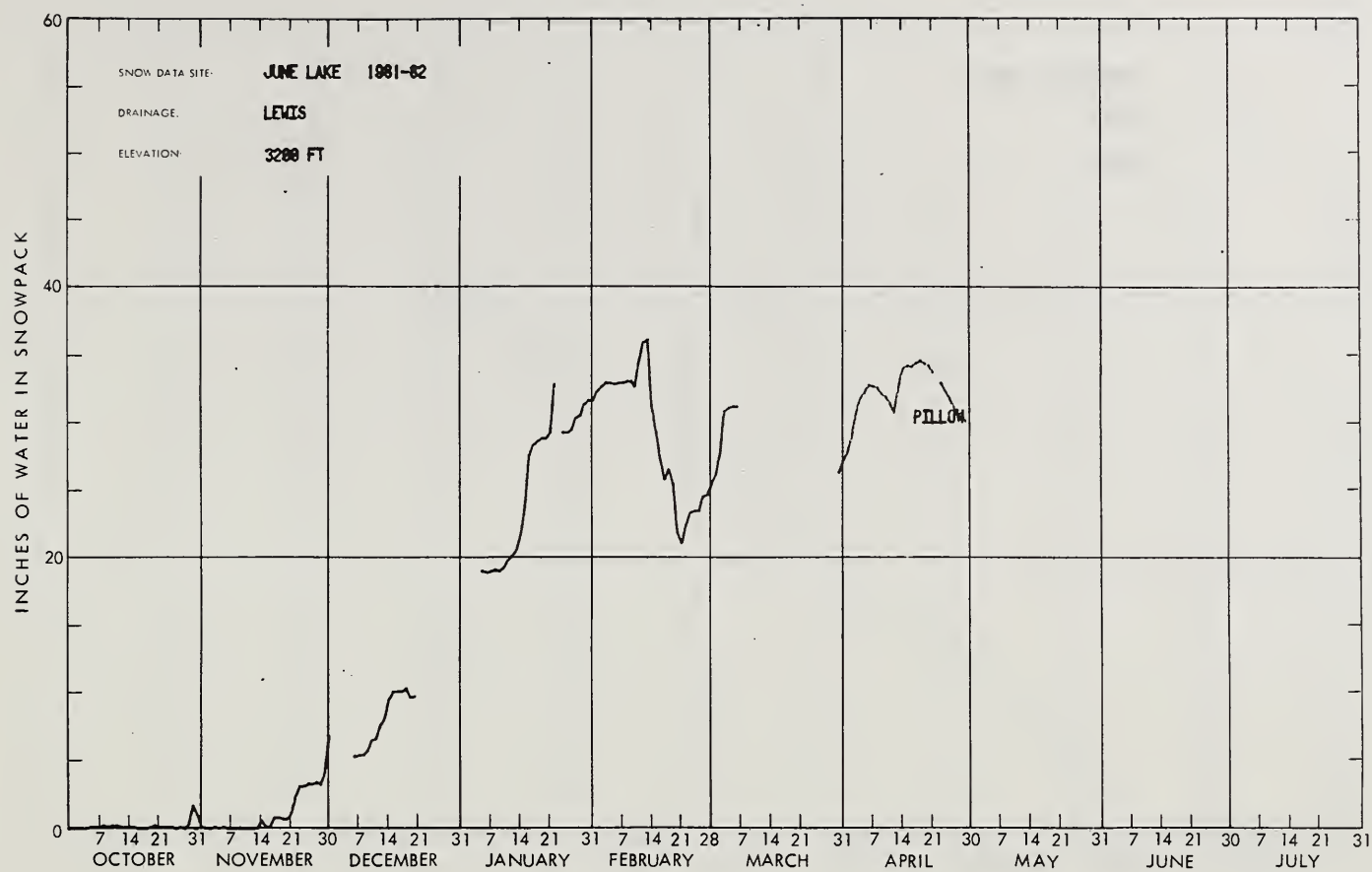
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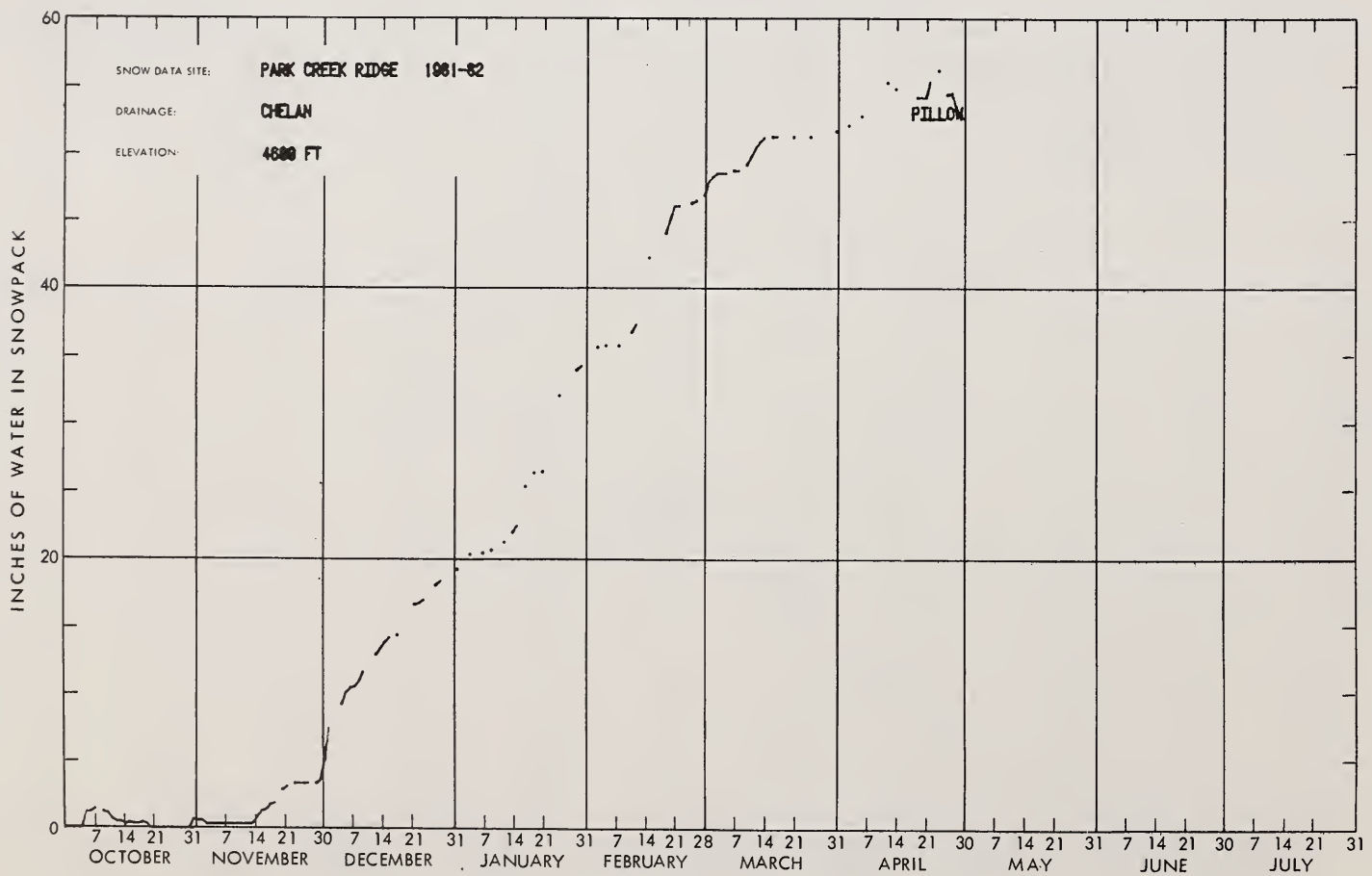
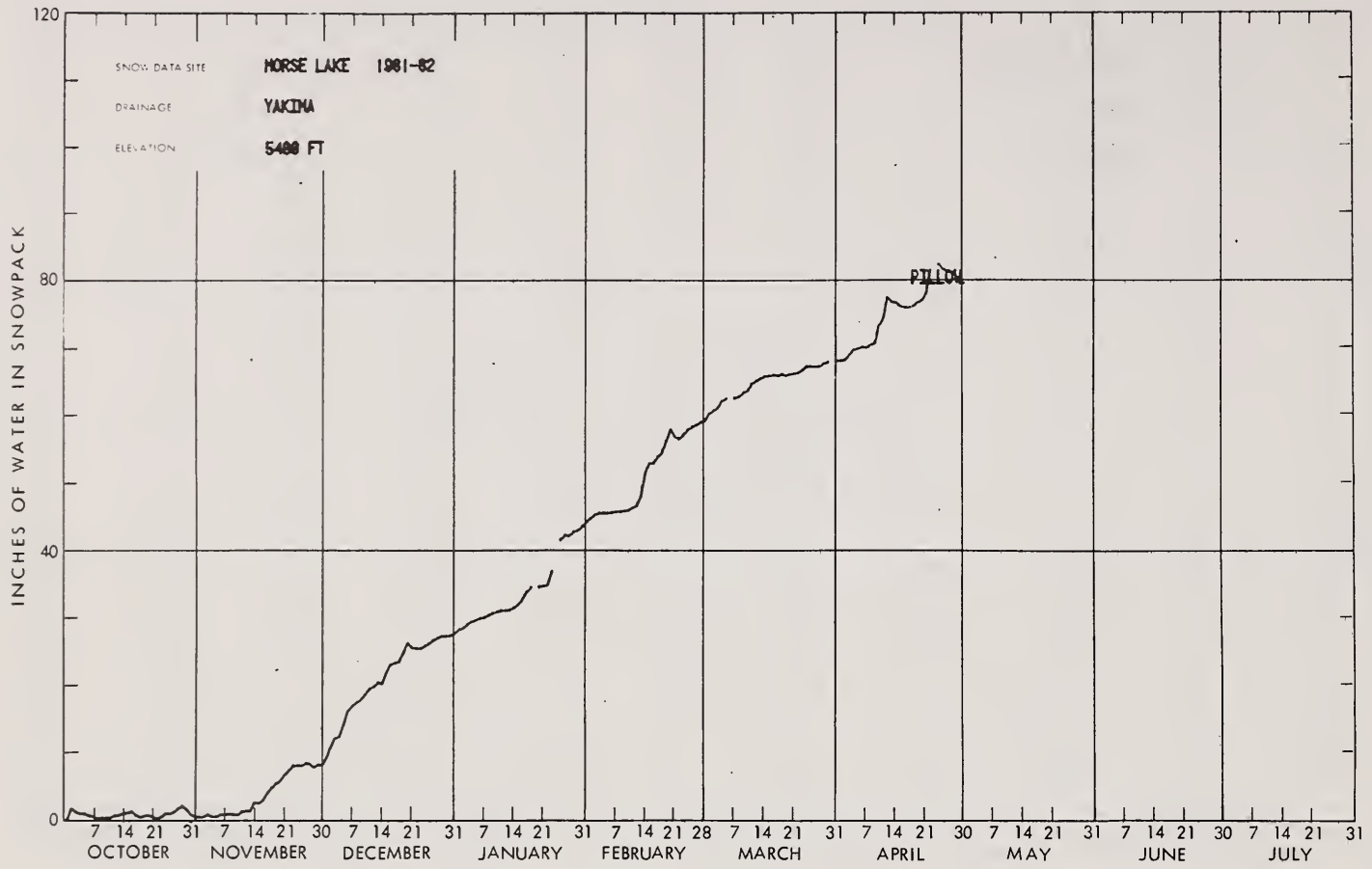
Preliminary Analysis by National Weather Service



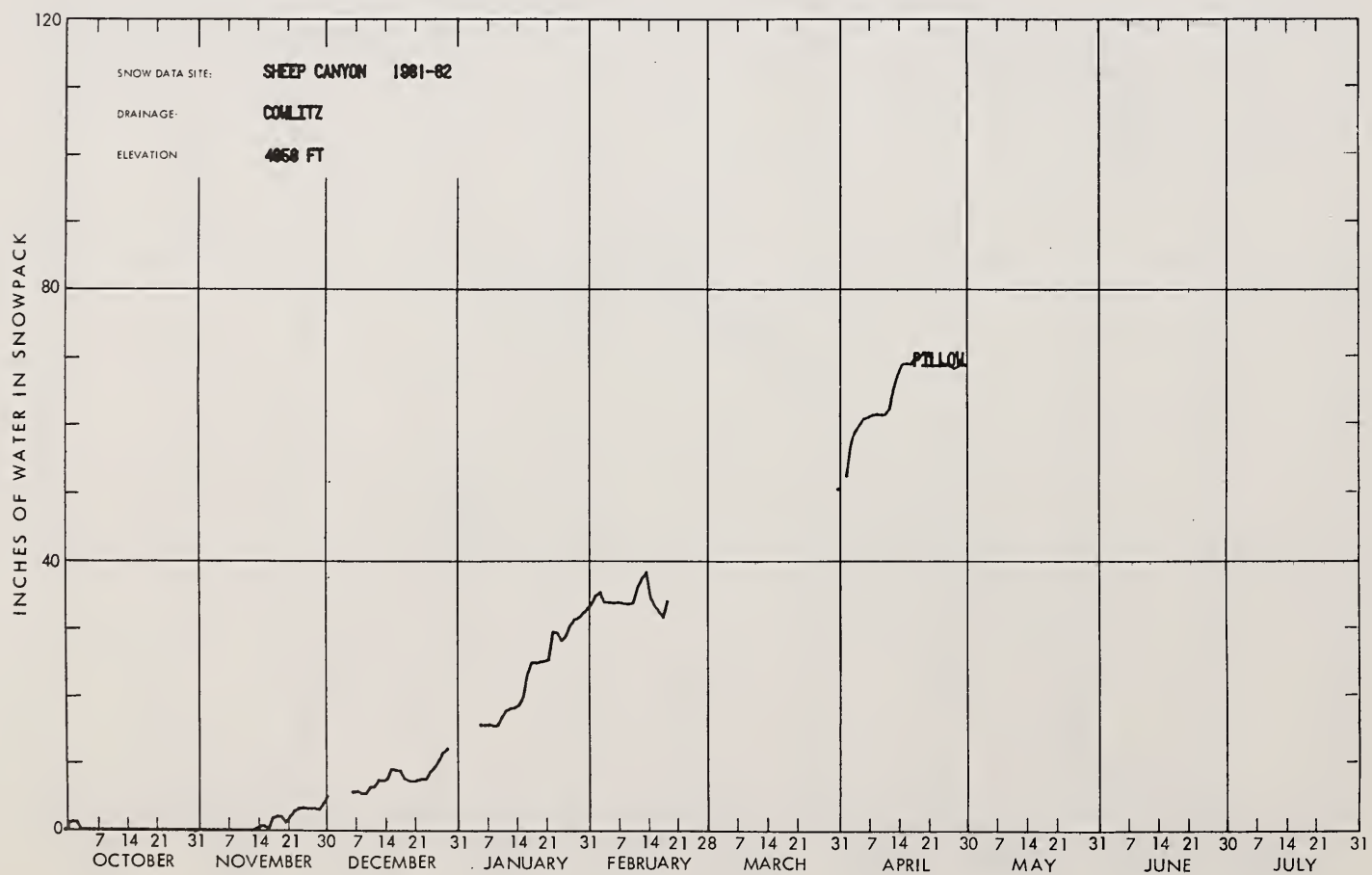
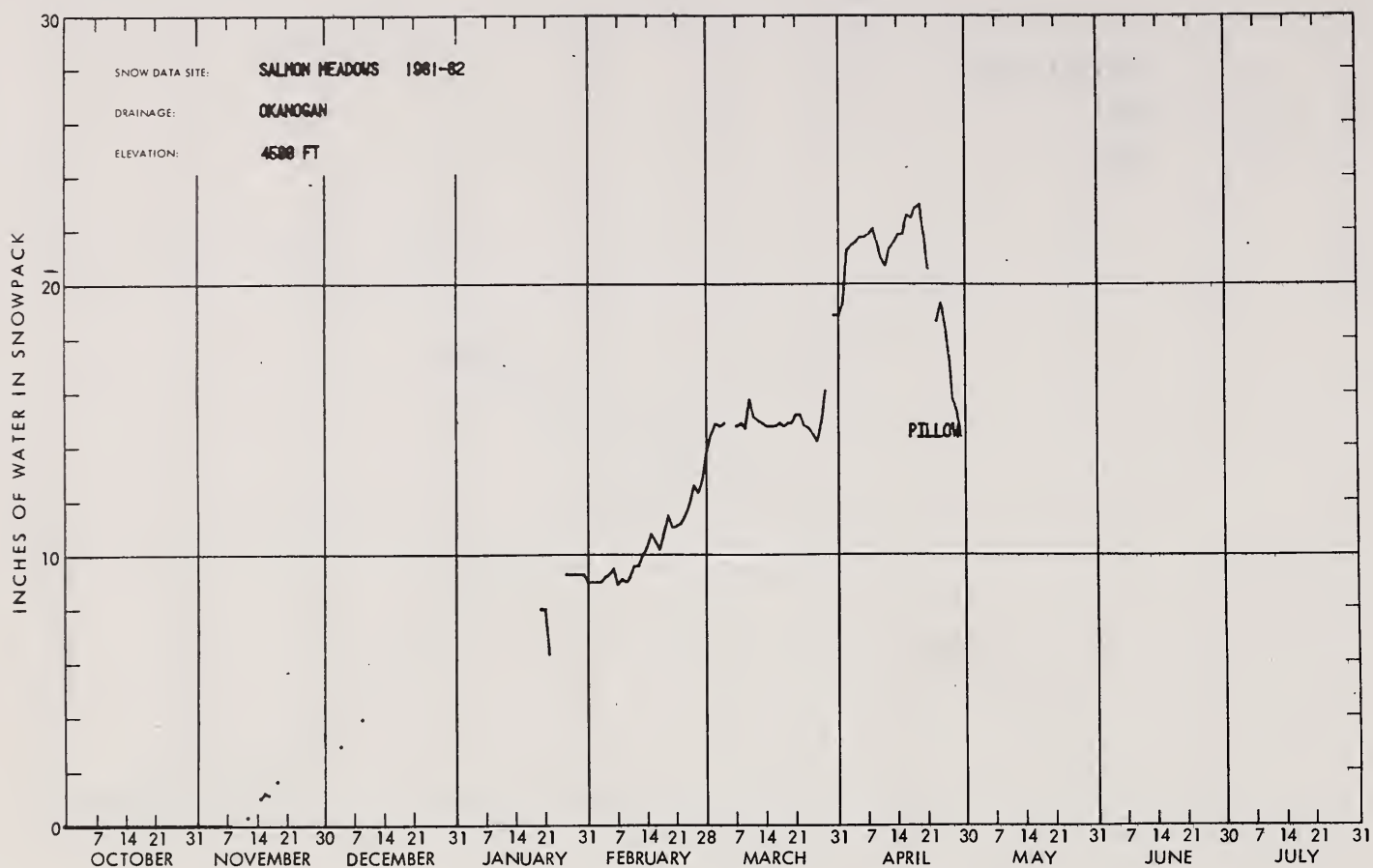


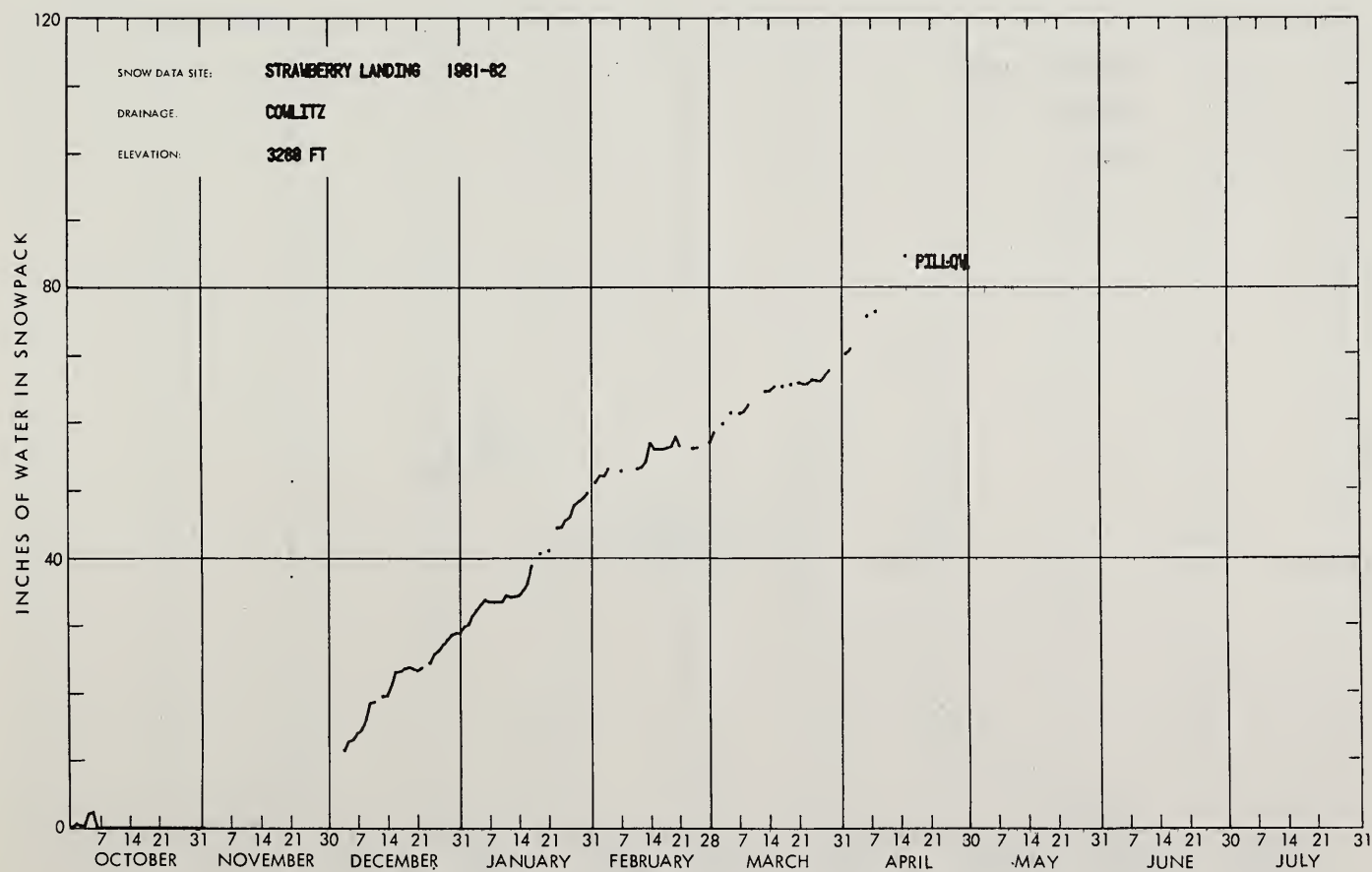
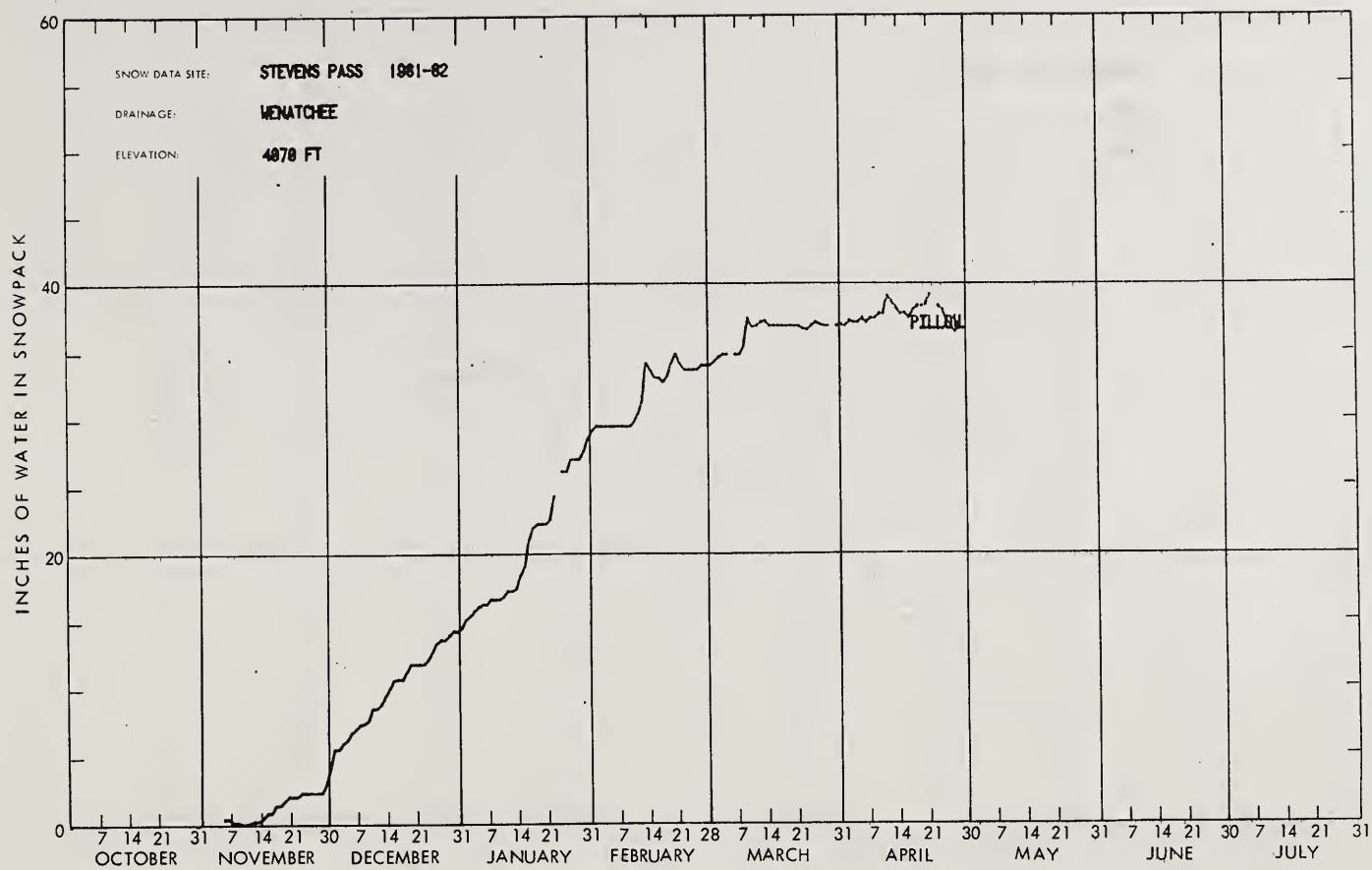


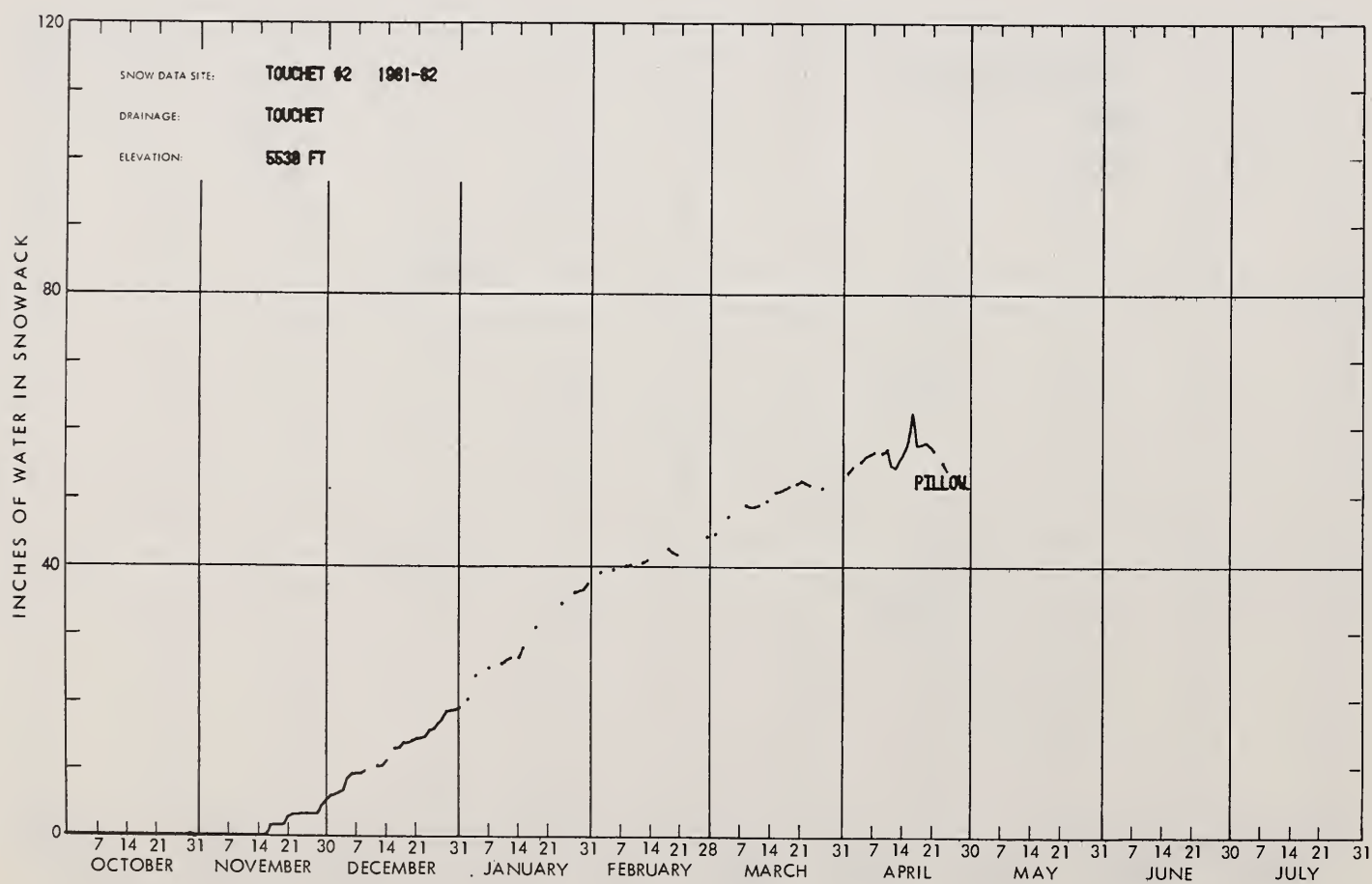
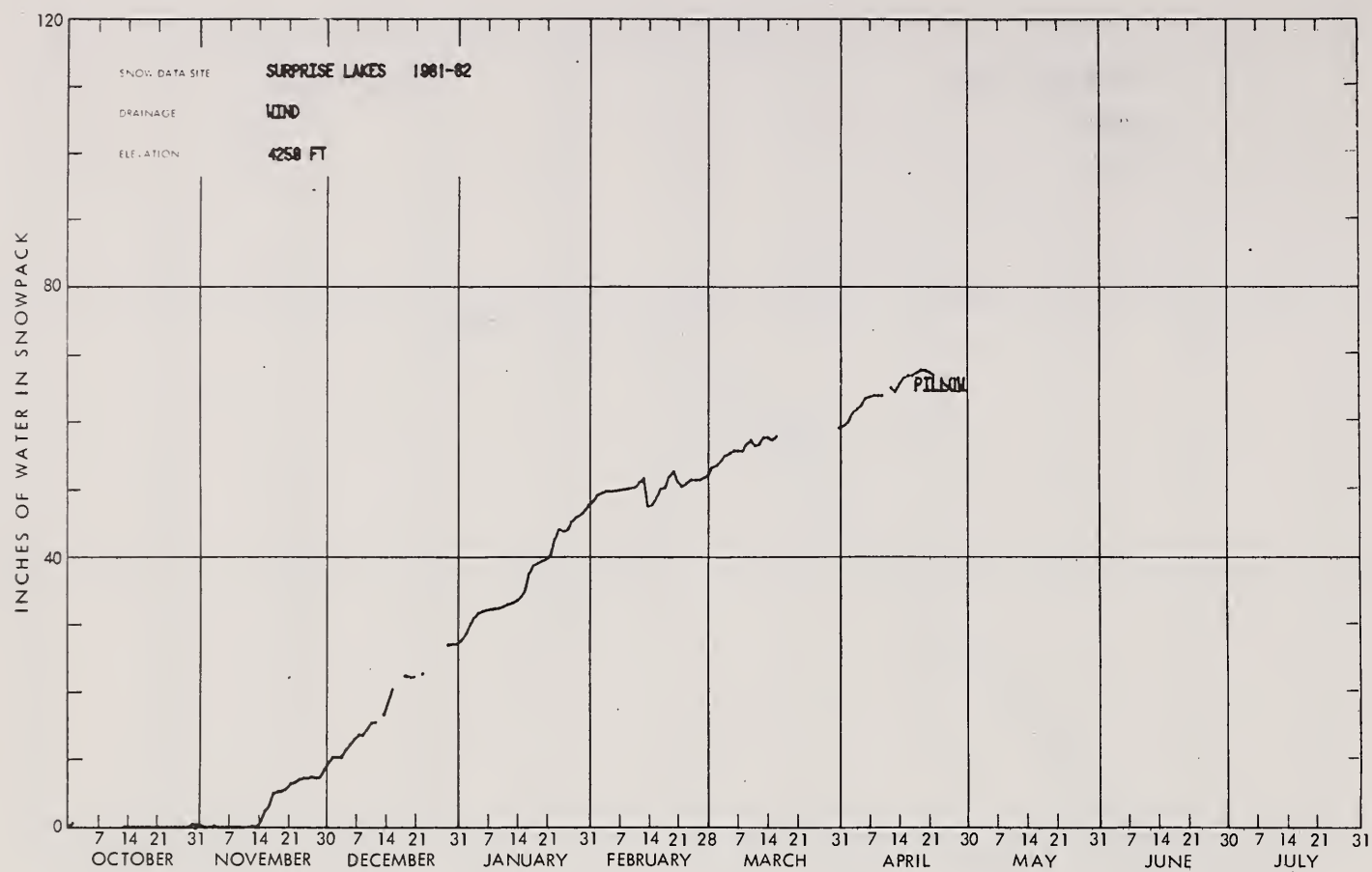


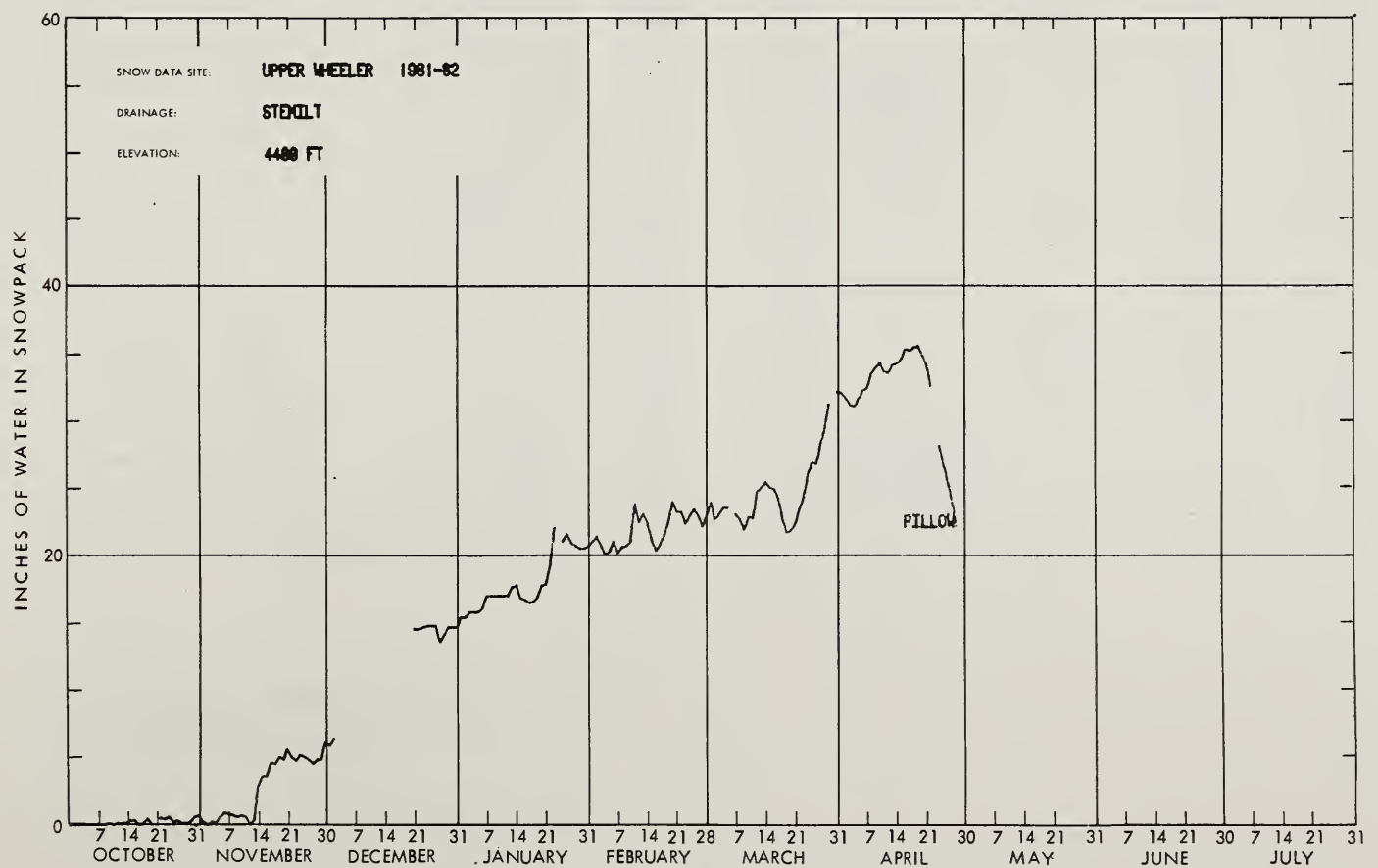
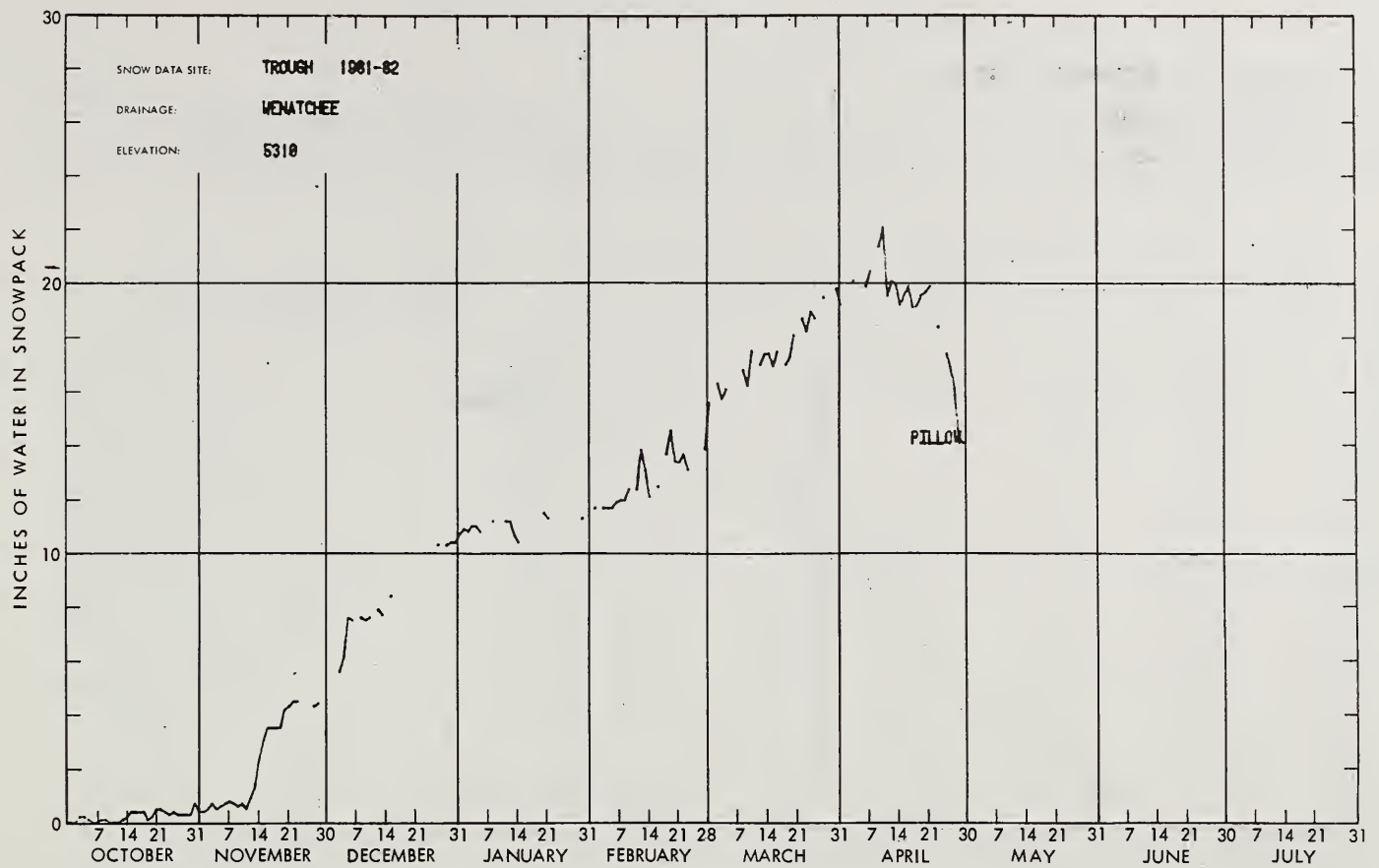


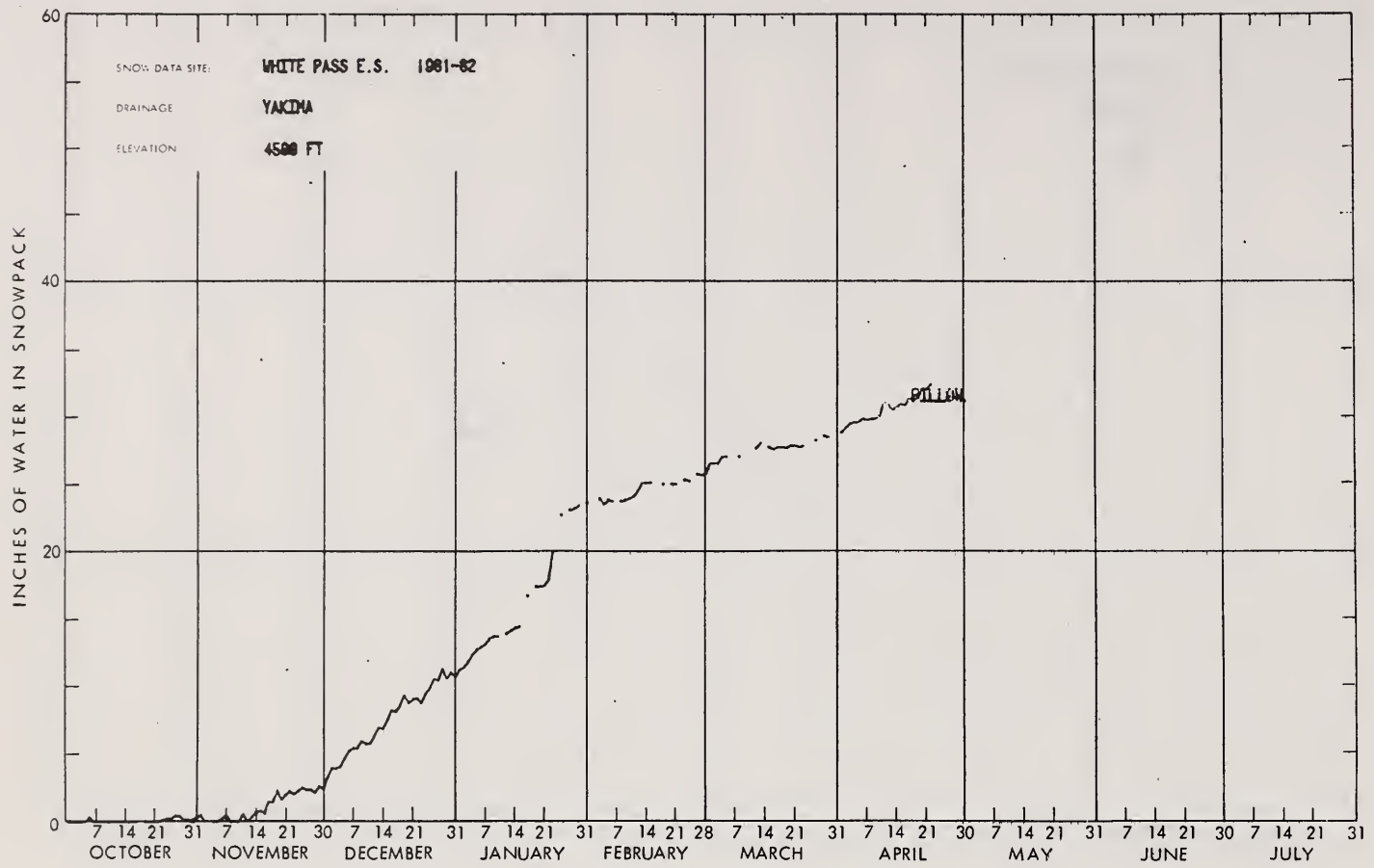












SNOW DATA TO MAY 1, 1982 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

U P P E R C O L U M B I A D R A I N A G E

P E N D O R E I L L E R I V E R

Baree Creek	15B11	5500	4/28	112	51.5	26.6	49.5
Baree Midway	15B16	4600	4/28	89	38.6	12.2	35.1
Baree Trail	15B15	3800	4/28	9	3.7	0.0	1.8
Benton Meadow	16A02	2344	4/29	0	0.0	-	0.0
Benton Spring	16A03	4900	4/29	44	17.7	6.5	16.7
Boyer Mountain	17A02	5250	4/26	63	25.7	14.4	25.2
Brush Creek Timber	14A13	5000	4/28	26	9.4	0.0	8.1
Bunchgrass Meadow	17A01	5000	4/29	84	38.2	18.8	30.0
Heart Lake Trail	14C10	4800	4/30	54	25.2	0.0	19.1
Hoodoo Basin	15C10	6000	4/30	148	68.5	33.4	55.6
Hoodoo Creek	15C01	5900	4/30	136	61.8	30.1	52.0
Lookout	15B02	5250	4/15	113	41.4	21.2	38.6
			4/30	97	37.6	14.2	35.4
Nelson	2D04-Can	3050	4/30	32	13.0	0.7	6.8*
Schweitzer Bowl	16A06	4500	4/30	88	40.1	-	26.8
Schweitzer Ridge	16A05	6100	4/30	136	61.3	30.4	47.5
Smith Creek	16A01	4800	4/29	122	58.0	36.8	47.4

K E T T L E R I V E R

Barnes Creek	2B06-Can	5300	4/26	56	23.4	16.9	20.5*
Big White Mtn.	2E03-Can	5500	5/1	62	21.7	18.1	20.9*
Bluejoint Mtn.	2E06-Can	7500	4/26	89	37.7	26.0	28.3*
Boulder Road	18A02	1450	Not Scheduled			0.0	0.0
Butte Creek	18A03	4070	Not Scheduled			1.7	6.0
Cabin Creek	18A08	3170	Not Scheduled			0.0	1.8
Carmi	2E02-Can	4100	5/4	7.5	2.6	0.0	1.9*
Farron # 1	2B02-Can	4000	4/29	34	13.6	5.9	8.3*
Farron # 2	2B02A-Can	4000	4/29	37	13.7	8.4	9.1*
Goat Creek	18A04	3595	Not Scheduled			0.0	-
Graystoke Lake	2F04-Can	5950	4/29	51	18.9	10.2	19.4*
Monashee Pass	2E01-Can	4500	4/26	41	16.5	10.2	12.7*
Old Glory Mountain	2B03-Can	7000	4/25	77	32.0	27.0	30.4*
Snow Caps Creek	18A05	2150	Not Scheduled			0.0	0.0
Snow Caps Trail	18A06	2720	Not Scheduled			0.0	0.0
Summit G.S.	18A07	4600	Not Scheduled			1.4	6.3
Trapping Creek Upper	2E04-Can	4450	5/4	20	7.7	1.8	5.8*

Average based on 1963-77 average

* Average for years of record

SNOW DATA TO MAY 1, 1982 - APPENDIX 2

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

SPOKANE RIVER

Above Burke	15B08	6100	4/29	48	20.6	4.6	19.7
Copper Ridge	16B02	4800	5/3	39	16.7	0.0	25.7
Forty-nine Meadows	15B03	5000	4/29	68	28.0	7.1	26.9
Fourth of July Summit	16B03	3100	4/15	6.7	1.6	-	-
Granite Peak	15B13A	6000	4/29	139	50.0	23.1	47.6
Lookout	15B02	5250	4/15	113	41.4	21.2	38.6
			4/30	97	37.6	14.2	35.4
Lost Lake	15B14A	6000	4/29	170	63.6	31.4	62.5
Lower Sands Creek	16B01	3400	5/3	40	15.9	0.0	18.3
Sherwin	16C01	3200	4/29	23	10.0	0.0	7.2

OKANOGAN RIVER

Aberdeen Lake	2F01A-Can	4300	4/29	15	5.7	0.0	1.6*
Blackwall Mountain	2G03-Can	6250	5/3	88	37.5	27.9	37.3*
Bouleau Lake	2F21-Can	4580	4/25	51	18.0	11.1	13.0*
Brenda Mine	2F18-Can	4800	4/28	35	13.7	7.7	9.8*
Brookmere	1C01-Can	3200	5/1	25	6.9	0.8	5.5*
Enderby	2F04-Can	6250	4/28	128	54.1	42.5	42.3*
Esperon Creek Lower	2F15-Can	4400	4/25	34	12.7	6.1	9.1*
Esperon Creek Middle	2F14-Can	4700	4/25	39	14.1	8.5	12.3*
Esperon Creek Upper	2F13-Can	5400	4/26	50	19.8	11.2	18.0*
Freezeout Mdw. New	20A38	5000	4/26	77	21.8	18.0	40.3
Grayback Res.	2F08-Can	5225	4/29	31	10.4	6.8	7.9*
Graystoke Lake	2F04-Can	5950	4/29	51	18.9	10.2	19.4*
Hamilton Hill	2G06-Can	4900	4/28	37	14.6	6.1	12.9*
Harts Pass	20A05A	6500	4/26	120	48.7	32.9	51.5
Isintok Lake	2F11-Can	5510	5/3	25	8.3	2.7	6.9*
Lightning Lake	3D02-Can	4000	4/29	36	13.0	3.7	10.7*
Lost Horse Mountain	2G04-Can	6300	4/30	35	11.7	5.2	10.3*
Loup Loup	19A07	4650	4/29	24	8.8	0.0	6.1
McCulloch	2F03-Can	4200	4/30	12	4.0	3.3	2.7*
Missezula Mountain	2G05-Can	5100	4/27	26	9.1	3.9	5.9*
Mission Creek	2F05-Can	6000	4/29	61	24.8	18.0	21.5*
Monashee Pass	2E01-Can	4500	4/26	41	16.5	10.2	12.7*
Mount Kobau	2F12-Can	5950	4/29	50	16.5	10.4	12.7*
Mutton Creek No. 1	19A01	5700	4/29	51	18.8	4.5	11.3
Mutton Creek No. 2 SP	19A11	6000	4/30	-	15.4	5.6	13.9
Nickel Plate Mtn.	2G02-Can	6200	4/25	28	9.3	2.7	7.9*
Oyama Lake	2F19-Can	4400	4/30	15	5.0	0.0	2.8*
Postill Lake	2F07-Can	4500	4/30	24	8.0	5.4	6.6*
Rusty Creek	19A03	4000	4/29	8.5	2.5	0.0	0.8
Salmon Meadows	19A02	4500	4/29	30	10.4	2.4	6.2
Silver Star Mountain	2F10-Can	6050	5/1	81	37.2	22.0	28.0*
Summerland Reservoir	2F02-Can	4200	5/3	22	8.3	3.3	6.6*
Sunday Summit	2G01A-Can	4300	4/29	3.1	1.2	0.0	1.0*

Average based on 1963-77 average

* Average for years of record

SNOW DATA TO MAY 1, 1982 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

OKANOGAN RIVER (Cont.)

Trout Creek	2F01-Can	4700	4/28	17	5.4	0.4	5.1*
Vaseux Creek	2F20-Can	4600	4/29	17	4.8	1.3	2.4*
White Rocks Mountain	2F09-Can	6000	4/30	59	26.6	13.6	23.7*

METHOW RIVER

Harts Pass	20A05A	6500	4/26	120	48.7	32.9	51.5
Loup Loup	19A07	4650	4/29	24	8.8	0.0	6.1
Mutton Creek No. 1	19A01	5700	4/29	51	18.8	4.5	11.3
Mutton Creek No. 2 SP	19A11	6000	4/30	-	15.4	5.6	13.9
Rusty Creek	19A03	4000	4/29	8.5	2.5	0.0	0.8
Salmon Meadows	19A02	4500	4/29	30	10.4	2.4	6.2

CHELAN LAKE BASIN

Park Creek Ridge	20A12A	4600	4/30	-	52.5	-	31.7
Rainy Pass	20A09	4780	4/27	103	42.8	30.0	47.5

ENTIAT RIVER

Blue Creek G.S.	20B28a	5425	4/29	122	53.9	29.5	39.9
Brief	20B19	1600	4/26	0	0.0	0.0	0.0
Entiat Meadows +	20A33a	4540	4/29	114	50.4	22.1	35.7
Entiat River Trail +	20A34a	3325	4/29	34	15.2	0.0	3.0
Four Mile Ridge +	20B27a	6800	4/29	98	43.3	19.7	38.5
Fox Camp +	20A36a	6510	4/29	158	69.8	15.6	64.1
Pope Ridge	20B20	3540	4/27	40	17.8	0.0	9.8
Pugh Ridge +	20A32a	6725	4/29	97	42.9	25.0	30.8
Shady Pass	20A37	6200	4/27	84	37.3	16.0	31.6
Snow Brushy +	20A35a	3910	4/29	93	41.6	18.4	29.4
Tommy Creek +	20B21a	4900	4/29	52	23.0	11.5	21.7

WENATCHEE RIVER

Berne-Mill Creek	21B23	2925	4/28	68	31.8	7.7	23.9
Berne-Mill Creek New SP	21B41	3240	4/28	52	26.0	0.0	19.8
Blewett Pass No. 2	20B02	4270	4/14	38	14.7	4.8	15.3
			4/23	34	15.1	0.0	10.8
Chiwaukum G.S.	20B16	1810	4/28	9.2	4.1	-	1.5
Fish Lake	21B04	3371	5/4	63	32.4	-	28.0
Lake Wenatchee	20B05	1970	4/28	16	7.7	-	2.7
Merritt	20B18	2140	4/28	23	10.5	-	5.5
Stevens Pass	21B01	4070	4/14	131	59.3	22.8	56.3
			4/28	124	58.6	18.2	57.5
Stevens Pass Sand Shed	21B45	3700	4/14	96	42.1	12.3	38.0
			4/28	83	40.0	4.7	37.3

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1982 - APPENDIX 4

SNOW

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average $\frac{1}{2}$
<u>SQUILCHUCK CREEK</u>							
Beehive Springs	20B03	4400	4/29	2.1	0.9	0.0	2.2
Scout-A-Vista	20B04	3400	4/29	0	0.0	0.0	0.3
<u>STEMILT CREEK</u>							
Jump-Off	20B08	4450	4/28	8	2.8	0.0	3.3
Stemilt Slide	20B06	5000	4/29	20	8.4	0.0	7.8
Upper Wheeler	20B07	4400	4/29	0	0.0	0.0	1.3
<u>COLOCKUM CREEK</u>							
Colockum Creek Upper	20B22	5300	4/28	26	10.4	0.0	10.8
Colockum Creek Lower	20B23	4300	4/28	5.8	2.0	0.0	2.8
Trough # 2	20B25SP	5310	4/28	40	16.5	0.0	New
<u>YAKIMA RIVER</u>							
Ahtanum R. S.	21C11	3100	4/26	0	0.0	-	-
Big Boulder Creek	21B09	3200	5/4	26	10.9	0.0	10.9
Blewett Pass No. 2	20B02	4270	4/14	38	14.7	4.8	15.3
			4/23	34	15.1	0.0	10.8
Bumping Lake	21C08	3450	4/16	33	12.4	0.5	13.8
			4/30	17	8.1	0.0	10.2
Bumping Lake New	21C36	3400	4/16	43	18.8	1.6	19.6
			4/30	28	13.6	0.0	15.2
Cayuse Pass	21C06	5300	5/3	-	94.0	-	98.1
Corral Pass	21B13	6000	4/27	114	53.1	22.2	42.6
Fish Lake	21B04	3371	5/4	63	32.4	-	28.0
Green Lake	21C10	6000		Not Measured		17.1	-
Joe Lake +	21B46a	4624	4/30	180	93.6	39.2	67.0
Lake Cle Elum	21B14M	2200	4/13	3.8	1.7	0.0	2.7
			4/30	0	0.0	0.0	-
Lemah Creek +	21B47a	3327	4/30	75	39.0	0.0	40.3
Morse Lake	21C17	5400	4/28	148	72.8	32.4	61.9
Olallie Meadows	21B02	3625	4/27	108	53.7	12.3	53.4
Satus Pass	20D01	4030	4/27	0	0.0	-	3.9
Stampede Pass SP	21B10	3860	4/16	116	55.4	14.5	42.9
			4/26	100	52.8	16.7	43.4
Tunnel Avenue	21B08	2450	4/14	53	23.2	3.3	23.9
			4/28	44	20.3	0.0	17.5
Van Epps Pass +	20B26a	5925	4/30	144	74.9	27.9	56.1
Waptus Lake +	21B49a	3024	4/30	78	40.6	0.0	38.9
White Pass (E. Side)	21C28	4500	4/14	81	29.7	7.5	26.9
			4/29	69	30.7	0.0	27.6

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1982 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

LOWER COLUMBIA DRAINAGEASOTIN CREEK

Spruce Springs	17C04	5700	4/26	64	31.4	8.2	24.8
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MILL CREEK

High Ridge	18D19	4150	5/3	74	36.4	11.9	27.0
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KLICKITAT RIVER

Satus Pass	20D01	4030	4/27	0	0.0	-	3.9
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LEWIS RIVER

June Lake	22C05	3200	4/15	-	34.0	-	38.9
			5/2	-	28.4	0.9	33.6
Lone Pine Shelter	21C26	3800	4/15	-	60.5	-	45.6
			5/2	-	63.4	13.9	48.0
Plains of Abraham	22C01	4400	4/15	-	-	-	71.1
			5/1	-	-	4.6	77.4
Spencer Meadow	21C20a	3400	4/15	-	-	-	27.1
			5/1	-	-	7.3	19.0
Surprise Lakes	21C13A	4250	4/15	-	66.8	-	53.7
			5/2	-	64.1	-	53.4
Table Mountain	21C24a	4200	4/15	-	-	-	50.7
			5/1	-	-	-	49.2

COWLITZ RIVER

Cayuse Pass	21C06	5300	5/3	-	94.0	-	98.1
Strawberry Landing	22C08SP	3280	4/15	-	84.8	-	-
			4/30	-	83.1	-	-
White Pass (E. Side)	21C28	4500	4/14	81	29.7	7.5	26.9
			4/29	69	30.7	0.0	27.6

PUGET SOUND DRAINAGEWHITE RIVER

Cayuse Pass	21C06	5300	5/3	-	94.0	-	98.1
Corral Pass	21B13	6000	4/27	114	53.1	22.2	42.6
Morse Lake	21C17	5400	4/28	148	72.8	32.4	61.9

GREEN RIVER

Airstrip	21B24	1800	5/1	0	0.0	-	2.1
Charley Creek	21B25	1200	5/1	0	0.0	-	-
Cougar Mountain SP	21B42	3200	4/27	47	22.3	0.0	20.7
Grass Mtn. No. 2	21B27	2900	5/1	24	10.5	-	-
Grass Mtn. No. 3	21B28	2100	5/1	0	0.0	-	-

Average based on 1963-77 average

SNOW DATA TO MAY 1, 1982 - APPENDIX 6

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)		
NAME	Number	Elevation				Last Year	Average $\frac{\#}{\#}$	
GREEN RIVER (Cont.)								
Lester Creek	21B29	3100	5/1	59	23.2	-	-	
Lynn Lake	21B50	4000	5/1	50	24.5	-	-	
Sawmill Ridge	21B31	4700	5/1	88	39.8	-	-	
Snowshoe Butte SP	21B43	5000	4/27	139	66.0	25.2	67.7	
Stampede Pass SP	21B10	3860	4/16	116	55.4	14.5	42.9	
			4/26	100	52.8	16.7	43.4	
Twin Camp	21B30	4100	5/1	63	29.3	-	-	
SNOQUALMIE RIVER								
Olallie Meadows	21B02	3625	4/27	108	53.7	12.3	53.4	
SKYKOMISH RIVER								
Stevens Pass	21B01	4070	4/14	131	59.3	22.8	56.3	
			4/28	124	58.6	18.2	57.5	
Stevens Pass Sand Shed	21B45	3700	4/14	96	42.1	12.3	38.0	
			4/28	83	40.0	4.7	37.3	
SKAGIT RIVER								
Beaver Creek Trail	21A04	2200	4/27	20	8.9	0.0	7.3	
Beaver Pass	21A01	3680	4/26	90	35.9	6.3	34.5	
Brown Top Ridge +	21A28a	6000	4/26	160	66.8	46.8	74.7	
Devils Park	20A04	5900	4/26	116	47.2	34.4	50.4	
Freezeout Creek Trail	20A01	3500	4/27	32	13.1	0.0	10.2	
Freezeout Meadows New	20A38	5000	4/26	77	31.8	18.0	40.3	
Granite Creek	20A06	3500	4/27	40	16.6	1.7	18.2	
Harts Pass	20A05A	6500	4/26	120	48.7	32.9	51.5	
Klesilkwa	3D03A-Can	3700	4/27	35	15.0	0.0	6.4*	
Lightning Lake	3D02-Can	4000	4/29	36	13.0	3.7	10.7*	
Meadow Cabins	20A08	1900	4/27	4.8	2.1	0.0	1.9	
New Hozomeen Lake	21A30	2800	4/26	20	8.3	0.0	10.5	
New Tashme	3D01A-Can	2500	4/30	20	7.4	0.0	3.0*	
Rainy Pass	20A09	4780	4/27	103	42.8	30.0	45.7	
Thunder Basin	20A07	4200	4/27	70	26.8	7.8	26.2	
BAKER RIVER								
Dock Butte	21A11A	3800	4/4	175	70.0	-	74.5	
Easy Pass	21A07A	5200		Not Measured		-	88.7	
Jasper Pass	21A06A	5400		Not Measured		-	92.6	
Marten Lake	21A09A	3600	4/4	204	82.0	-	82.8	
Mount Blum +	21A18a	5800		Not Measured		-	65.9	
Panorama New	21A26	4300		Not Measured		-	77.0	
Rocky Creek	21A12A	2100	4/4	88	35.0	-	34.4	
Schreibers Meadow	21A10A	3400	4/4	144	58.0	-	68.8	
S. F. Thunder Creek	21A14A	2200	4/4	20	8.0	-	7.9	
Watson Lakes	21A08A	4500	4/4	166	60.0	-	72.3	

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1982 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

NOOKSACK RIVER

Glacier Creek	21A23	3700		Not Measured		-	27.1
Panorama New	21A26	4300		Not Measured		25.3	88.3

O L Y M P I C P E N I N S U L ADUNGENESS RIVER

Deer Park	23B04	5200	4/26	67	28.9	3.7	24.2
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MORSE CREEK

Cox Valley	23B14	4500	4/29	132	55.6	15.1	45.3
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ELWHA RIVER

Hurricane	23B03	4500	4/27	76	28.7	6.5	28.2
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Average based on 1963-77 average

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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